DOCUMENT RESUME

ED 237 097 IR 050 518

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TITLE	Coordinating the Organization of Library Services in Metropolitan Milwaukee.
INSTITUTION	Wisconsin Univ., Milwaukee. School of Architecture and Urban Planning.
REPORT NO	R83-1
PUB DATE	Mar 83
NOTE	102p.; Some tables may not reproduce.
AVAILABLE FROM	Center for Architecture & Urban Planning Research, School of Architecture & Urban Planning, University of Wisconsin-Milwaukee, PO Box 413, Milwaukee, WI 53201 ($1.00 to cover postage and handling).
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Costs; Institutional Cooperation; *Interlibrary Loans; *Library Administration; Library Circulation; Library Expenditures; Library Networks; Library Services; *Organizational Change; Planning; *Public Libraries; *Resource Allocation
IDENTIFIERS	*Milwaukee Federated Library System

ABSTRACT

A study commissioned by the Milwaukee Federated Library System identified problems and proposed organizational strategies towards their solution. A manifest problem with research and reference service cost allocations led to Milwaukee County's withholding of funds, while latent problems were identified in the interlibrary book circulation system. Five alternative organizational configurations for this metropolitan interlibrary system were developed and evaluated. Tentative assessment suggests that an organization similar to the existing system but without county participation would be both feasible and effective, though reconsideration of system-state relationships and possible amended legislation might be required. Prevailing cost allocations were recognized as a basic problem threatening eventual disintegration of the system. Alternative approaches to estimating and allocating service costs were simulated for selected services, and analyzed to develop recommendations for negotiating new rate structures. Recommendations were made for the system's organization and governance, and for modification in system-state relations. (LMM)

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COORDINATING THE ORGANIZATION OF LIBRARY SERVICES IN METROPOLITAN MILWAUKEE

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March, 1983

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Report R83-1

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EXECUTIVE SUMMARY

1. History and Problems (pps. 3-14)

   The Milwaukee County Federated Library System (MCFLS) came into being in 1972 in response to SB42, the statute providing for and offering State aid to Federated Library Systems. Both prior to and concurrently with the MCFLS, interlibrary and non-resident services have been provided by Milwaukee and other participating communities through a set of contracts and agreements. Manifest problems appeared in the Research and Reference (R & R) services in 1981, with Milwaukee County's withholding of its payment for R & R services to suburban residents. Latent problems exist with regard to rates for interlibrary book circulation, which are so high as to present incentives for duplication of holdings and withdrawal from the system. The County's retreat poses requirements for reorganization, and demands reconsideration of System-State relationships.

2. Organization (pps 15-27)

   Five alternative organizational configurations were developed and evaluated. These are described in several dimensions which include: which services are provided and opted for by participating communities? How is the system governed? and How are service costs estimated, allocated, and funded? The alternative forms of organization range from the "No-System System" at one extreme, to a "Quasi-Consolidated System" at the other. Our very tentative evaluation suggests that an organization similar to the existing MCFLS but without County participation would be both feasible and effective.

3. Cost Allocations (pps 39-88)

   Alternative approaches to estimating and allocating service costs were simulated for selected services. These analyses suggested the following:

   Circulation: Current circulation rates are based on a relatively high estimate of the overall average costs of the highest cost supplier, the Milwaukee Public Library (MPL). Alternative bases for estimating and allocating circulation costs are presented. They include "export" costs, substitution costs, and tax-like allocations. In all cases, the estimate of total costs is critical: obviously, marginal-like or "export" costs yield far lower sums for allocation than average costs do, and per-unit rates drop from the current $1.60 to $0.61.

Research & Reference: Alternative allocations for R & R services are modelled, based on different cost estimates. An adjusted cost estimate approximating actual "export" costs suggests a rate per R & R request of about $1.76, which would yield a payment to MPL (assumed to be the sole supplier) of $188,000 by "consuming" suburban localities, based on 1981 patterns of use of telephone and walk-in services.

System-Provided Services: Over-60 and Multi-Media circulation are provided by the MCFLS and funded by State aid. These pose no problem today, but their opportunity costs should be evaluated in the context of renegotiating other service cost allocations.

4. Recommendations (pps 89-95)

Organization and Governance: State statutes and System by-laws should be amended to enable establishment of a Federated Library System without County participation, and composition and procedures of the governing Board changed accordingly, consistent with equitable and effective representation and administration.

Research & Reference: The System should move toward reinstating full R & R services for all residents, and negotiate an appropriate formula for estimating and allocating the costs of this service. Options for funding are: pay-for use, tax-like levy, State aid, or a combination of these.

Book Circulation: The rates for interlibrary book circulation should be revised to more accurately reflect estimated costs of supply and users' possible substitution costs. These requirements might be most effectively met by a flat per unit rate between the highest supplier's estimated cost of $0.69 per unit and the weighed average users' substitution cost of $0.51.

System State Relations: The existing statutes should be amended, interpreted or administered to recognize the objective differences between Milwaukee County and the rest of the State, and objective definitions of maintenance-of-effort should be developed which reflect localities' real contributions to the delivery of interlibrary and non-resident services.

1. INTRODUCTION

This report presents an analysis of the Milwaukee County Federated Library System (MCFLS) which was carried out in late 1982 and early 1983. Its purposes are threefold:

1) to present the history and analyze the operation of the Milwaukee County Federated Library System so as to identify manifest and latent problems;
2) to inform readers about variables that may be important in structuring or re-structuring a system for coordinated library services.
3) to assess the effects of several potential changes in the operating characteristics of the system.

The MCFLS commissioned this study as a result of problems which culminated in 1982 with an examination of whether the System was in conformity with statutory requirements. In the context of this examination the Division of Library Services of the State Department of Public Instruction mandated and funded this analysis of the MCFLS organization and operations. In preparing this report, we made every effort to use the knowledge and expertise of many individuals familiar with the System and its members' operations.

Every interested person, organization and unit of government has had an opportunity to review this study in progress, and to present their comments for consideration and incorporation in this analysis and its conclusions. An Advisory Committee, representing a wide range of interests*, was set up to assist in this project, and we met with the Committee and solicited its comments to our Interim Report. The Interim Report was also the subject of a workshop which attracted 33 participants, who included librarians, members of library Boards, city, suburban, County and State officials. Finally, the Draft Final Report was distributed to a large number of people in relevant roles, and their responses requested to any points which they believed required amendment. These comments, where appropriate, have been incorporated into the final report. Consequently, we are confident that this report reflects a fair consensus of prevailing opinion, but undoubtedly many of its details will become the subjects of lively debate.

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*For membership of this Committee, see p.98; naturally, the Advisory Committee does not share responsibility for this study or its conclusions. Nor do the MCFLS or the State DPI agree with, endorse, or accept any responsibility for this report.

We do not recommend one course of action to remedy current difficulties. Such decisions can only be made in a process of interaction and debate in various institutional and political arenas, and are likely to be made only after extended discussions among those involved. We hope that our analysis of the components of a system, their inter-relationships, and the effects of altering them offer greater understanding of the options available for library service in Metropolitan Milwaukee, and may contribute to enhancing the quality of debate and of the decisions that must be made.

2. HISTORY AND BACKGROUND

HISTORY:

The current Milwaukee County Federated Library System evolved from libraries serving individual communities in Milwaukee County. The major operating and governance characteristics of library service in the County prior to formation of the Federated System are described here.

Prior to 1965

As of 1960, there were seven municipally owned public libraries in Milwaukee County: Milwaukee (established 1878), Wauwatosa (1897), South Milwaukee (1899), Cudahy (1906), West Allis (1907), Whitefish Bay (1937), and Shorewood (1945).

Suburban residents of 17 municipalities in Milwaukee County (all except South Milwaukee) enjoyed use of City of Milwaukee books through check out at their local library (where one existed) or a Milwaukee library. Eventually, South Milwaukee also entered a circulation agreement. In addition, Elm Grove and Brookfield developed circulation contracts with the Milwaukee Public Library (MPL), which are still in effect (both communities are in Waukesha County). The exchange of services was accomplished through the "County contract" established in 1915. The City of Milwaukee and Milwaukee County entered an agreement potentially allowing use of City of Milwaukee library services and books by residents of suburban county communities. Each suburban community could contract with the County for services and use of City of Milwaukee books. The County was, thus, a broker for City of Milwaukee library services and book use. Available services included: 1) books--purchased, catalogued, and processed by the Milwaukee Public Library, and maintained as part of a suburb's collection on its own shelves; 2) circulation -- access to the Milwaukee Public Library's book collection; 3) miscellaneous services, such as publicity and brochures. Shorewood and Whitefish Bay made extensive use of the book service, with substantial portions of their collections owned by the City of Milwaukee.

Each suburb paid 28¢ per item circulated to its residents from a Milwaukee Library or bookmobile and 22¢ per item for those circulated from that suburb's library. The fee was estimated to represent half of Milwaukee's per book operation cost -- with certain deductions such as the municipal reference library. The County collected fees through a special tax levy on each suburb to cover that suburb's charges and credited the City of Milwaukee with that amount. An administration charge (basis for computation unknown, in 1958 it was $24,400) was distributed among participating suburbs according to population: a fixed sum for communities under 10,000 population; fixed fee plus 7¢ per capita for larger communities.

City of Milwaukee residents could not borrow from suburban libraries, nor could suburban residents borrow from other suburban libraries, with two exceptions: South Milwaukee provided service to Oak Creek (45¢ per item) and Whitefish Bay provided service to Bayside, Fox Point, and River Hills (28¢ circulation and 6¢ administration fee per item). All other suburbs could withdraw Milwaukee-owned books from the Whitefish Bay library (28¢ fee per item paid to Milwaukee, Milwaukee credited Whitefish Bay 6¢ per item). These residents could also use Whitefish Bay owned books for 2 1/2¢ per day per item.

Anyone could make use of all the resources of each library within the library (except book check-out) at no charge and without regard to resident status.

1965 to 1972

The County contract for library services and book use continued during the period 1965-70. In addition, the County began compensating the City of Milwaukee for research and reference service (walk-in and telephone), provided at the main library to anyone, on request.

In 1965, the Milwaukee County Board appropriated $150,000 for payment to the Milwaukee Public Library for research and reference service. The amount was largely "picked out of the air," apparently representing some people's best guess at fair compensation for the service. The $150,000 annual payment continued in 1966 and 1967.

In 1967 County Board Supervisor Michael Barron chaired a study committee that developed a formula for computing future County payments to the Milwaukee Library for research and reference. The formula was complex and in theory designed to reflect actual costs of providing the service. The County and the Milwaukee Public Library agreed to use the formula, which was based on total research and reference costs, proportion of suburban use, and property tax values; the original formula using 1974 as an example:

$$\text{County Payment 1974} = \frac{\text{1972 MPL Research \& Ref. Costs} \times \text{Co. Suburbs Use as \% of total use}}{\text{Co. Suburban Equalized Taxable Property Value as \% of Total Co. Equalized Taxable Property Value for 1973}}$$

The computation of Research and Reference costs involves consideration of many service and salary costs. The rationale for inclusion or exclusion of a given proportion of each cost has never been clear and the formula has been subject to much criticism from county and suburban representatives since its inception. The formula took effect in 1968. Payments by the County to the Milwaukee Public Library for research and reference appear in Table 1.

LEGISLATIVE CHANGES:

SB 42

In 1971, the Wisconsin legislature adopted Senate Bill 42: legislation to enable and encourage establishment and development of library systems. Important provisions of the statute are enumerated below.

1) The statute directs the state Superintendent for Public Instruction to promote and coordinate:

   a) the organization and development of public library services and public library systems to serve all the state's citizens and
   b) regional organizations for interlibrary cooperation and resource sharing between local governments, public libraries, and other libraries [Wi. Stats. 43.03(2), (3) (b)].

2) The Division of Library Services (DLS) in the Department of Public Instruction (DPI) is charged with establishing public library system standards based on population served, adequacy of buildings and physical facilities, qualifications and number of personnel, book resources and other materials, financial support, and other criteria that the division finds necessary to ensure adequate library service [Wi. Stats. 43.05(7), 43.09(2)].

3) Two types of public library systems, federated and consolidated, were enabled. A federated system is one in which the governing bodies of included political divisions enter into written agreements for library services among participating libraries. Each included county must furnish library service to those jurisdictions in the system but without a library [Wi. Stats. 43.15(4)(a)]. Federated systems may be single county or multi-county. A consolidated system is one in which all participating libraries are merged to form a single operating entity under single ownership.[43.15(4)(b)].

4) A member of either type of system may withdraw only after three years participation. [43.18(1)].

5) State financial aid is predicated on membership in a system, on provision by the system of certain services, and on support for the system by member municipalities. [43.24 (2)(a)] Support by municipalities must, when combined with state aid, be adequate for support and maintenance of public library service meeting the standards set by the Division of Library Services. It also must not be lower than the municipalities' average support of the three previous years. Systems must provide or perform the following services and functions to remain eligible for state aid:

1. During the first year of operation:
   a. Interloan of library materials among all participating libraries;
   b. Reference and reference referral services from the headquarters library.

2. By the end of the 2nd year of operation:
   a. Complete library service as provided at the headquarters library to any resident of the system on the same terms as the service is available to residents of the headquarters community;
   b. The honoring of valid borrowers' cards of all public libraries in the system by all public libraries in the system.

3. By the end of the 3rd year of operation:
   a. Inservice training for library personnel within the system;
   b. Rapid and regular delivery and communication system;
   c. Service agreements with all adjacent library systems;
   d. Professional consultant services to system libraries.
   e. Through agreements with other types of libraries in the system area, appropriate sharing of library resources to benefit the clientele of all libraries.

4. Engage in continuous planning with the Division of Library Services and libraries in the system area on developing the library materials collection to meet the service needs; on providing service to isolated, disadvantaged, and handicapped residents; and on furthering cooperative activities among all types of libraries in the system area.

6) Systems may be planned by a committee, appointed by a county board. Committees are eligible for planning grants of up to $2000.

Milwaukee County Response to SB42

In response to the new state legislation the Milwaukee Area Library Boards Association (a forum for exchange of ideas and information made up of library board members and chief librarians of each community) applied for state library planning money and with DLS approval formed the Milwaukee County Library Planning Committee. The Committee was composed of library board members from various libraries in the county. This committee could not reach agreement on services to be provided by the federated system. It was replaced by a new committee, appointed by then County Executive John Doyne and made up of municipal and county elected officials and librarians. This committee developed a federated library system plan that, after some hesitation, was approved by the Division of Library Services. At issue, in part, was control (county vs. federated system board) over federated system dollars, which ultimately rested with the federated system board, in accordance with the state law which calls for payment to a system (43.24).

The original federated system agreement, between Milwaukee County and the City of Milwaukee Library established a method by which state aid ($452,820 the first year) to the federated system would be divided among services and among member communities' libraries (of which there were the same seven enumerated earlier);

25%	divided proportionate to population among the seven communities with libraries;
10.7%	paid to Milwaukee County as partial reimbursement for research and reference service costs;
64.3%	to be used by the headquarters library (i.e. Milwaukee Public) to acquire, process, and distribute library circulating materials, with these materials being distributed on the basis of each library's expenditures for acquisition or contract charges. Each library would order materials of its librarian's choosing through the federated system. Materials acquisition by the system ended after two or three years, because the state aid appropriation was less than that enabled by statute.

Eight communities without libraries participated in the original system: Bayside, Fox Point, Franklin, Glendale, Greenfield, River Hills, St. Francis, and West Milwaukee. Hales Corners and Oak Creek joined in 1974. Franklin withdrew after 3 years. Fox Point/Bayside (jointly), Greendale, and Brown Deer later opened libraries, which are now part of the system. The original agreement disallowed any charge to any municipality or individual for use of materials acquired with system funds.

In November 1972 County Executive John Doyne appointed the first federated system board. Members included then State Representative David Berger, appointed as President of the system board; trustees of library boards from Whitefish Bay, West Allis, South Milwaukee, and the City of Milwaukee; a county board supervisor, and a representative of the City of Milwaukee's Fiscal Liaison Office.

MCFLS OPERATIONS:

The federated system operates, as a practical matter, largely within the Milwaukee Public Library. The City Librarian is the System Librarian and much of the system's budgetary and administrative work is carried out by city library personnel. The system reimburses the city for some system costs. As system services have expanded, e.g., to electronic check-out, over-60, and multi-media services, the system has acquired some staff of its own.

Early system priorities were for centralized circulation control, non-print materials, and access to materials. The system grew in state aids (see Table 2) and in services, but library service was without structural change until 1977, when suburban communities entered into a reciprocal borrowing agreement. Although suburban residents could previously borrow Milwaukee Public Library materials and system materials, they could not borrow another suburban library's materials until 1977. This reciprocity is a condition for receiving State aid.

Although controversy continued over the formula used to compute Milwaukee County's payment to the Milwaukee Public Library for Research and Reference service to the suburbs, the system functioned fairly smoothly until the fall of 1981. Library service in Milwaukee County operated through the three cooperative agreements:

1) The Milwaukee County Contract, established in 1915 -- extends Milwaukee Public Library services to other communities in the county at each community's option. Services include purchase and processing of books and borrowing privileges at Milwaukee Public Libraries, and bookmobile service provided through subcontracts for which the community pays a fee for each item borrowed. Milwaukee County acts as a collection agent for the supplier, MPL, billing each locality for its charge in the form of a special levy. It is worth noting that this levy is included under the assessments which are subject to municipalities' statutory levy limit, but it does not fall under the County's levy limit.

2) The Federated System Contract, established in 1973 -- provides a mechanism for joint acquisitions through system purchases, has resulted in centralized, automated book check out, and joint expansion of services to multi-media materials and over-60 service. It was amended in 1977 to include a Reciprocal Borrowing Contract, providing for reciprocal provision of services, including borrowing privileges, among suburban communities. This contract allows system members to receive state financial support through the system.

3) The Research and Reference (R & R) Agreement -- established in 1965 as a flat payment ($150,000) by Milwaukee County to the Milwaukee Public Library for provision of Research and Reference service to suburban communities in Milwaukee County; changed in 1968 to compute the payment according to the formula described above.

Although the circulation agreement and Research and Reference payments were established apart from the Federated System contract, the County payment to Milwaukee Public Library for reference service met, in part, the statute's requirement for local support and "maintenance-of-effort" and thus, qualified the Federated System for state aid. As the county's budget constraints tightened in the late 1970's, the County Executive again questioned, perhaps more forcefully than ever before, the fairness

of the reference payment formula. In 1979, he recommended payment of the R & R fee on condition that he hire a consultant to examine the formula. The consultant determined the formula was "unacceptable," although there was little evidence that a systematic analysis of the formula had been performed.

As a result of the consultant's finding, County Executive O'Donnell withheld the $500,000 second half-year 1980 payment to the Milwaukee Public Library (MPL). The MPL board voted to cut off suburban reference service and the County Executive released the payment. In response to this close call, the County Board established (in Nov., 1980) a City-County Library Services Committee to re-work the formula and clarify the relationship between the Milwaukee Public Library, Milwaukee County, and the Federated System. Although the Committee reached agreement on future payments, it did not really attempt to construct a new formula. By deciding that the 1982 payment would equal the average of 1979, 1980, and 1981 payments, the Committee chose the minimum amount necessary to qualify the system for state aid and, essentially, accepted the underlying premises of the original formula. Future payments would vary proportionately with the MPL operating budget; payments would be made to the Federated System rather than to the Milwaukee Public Library. Apparently, the political difficulties anticipated in any attempt to construct a new formula deterred the committee (and anyone else) from trying.

The new agreement was approved by the County Board in May 1981 with an escape clause, making the allocation contingent on the County's budget being sufficient to meet all commitments. The County Executive did not sign the agreement and recommended in his proposed 1982 budget that the research and reference payment be eliminated. An amendment to the County's budget to pay only $331,500 for walk-in service (and not telephone reference) failed to pass the County Board. The County budget office did not make the 1982 payment, using the escape clause in the agreement. Consequently, the Milwaukee Public Library ended walk-in reference for suburban residents and all telephone reference in January, 1982; this apparently put the Federated Library System in violation of the statutory requirements for receiving state aid.

The Department of Public Instruction (DPI) withheld a state aid payment, held a hearing to determine whether the system was in compliance with the law, and found that it was not. DPI gave the system a year to comply based on indications (such as restoration of walk-in reference service on July 1, 1982) that its members were making a good faith effort to comply, and released the aid payment on the condition that an analysis of the system's organization be commissioned by the Federated System Board.

Library Trends in Milwaukee County

The tables in this section depict changes in library and federated system activity over time.

Table 1

Payments by Milwaukee County to Milwaukee Public Library for Research and Reference Service

1965 -	$150,000	1973 -	$ 708,661
1966 -	150,000	1974 -	798,590
1967 -	150,000	1975 -	811,834
1968 -	560,321	1976 -	884,491
1969 -	539,116	1977 -	980,349
1970 -	562,824	1978 -	1,036,787
1971 -	631,568	1979 -	1,132,749
1972 -	702,636	1980 -	1,058,628
		1981 -	1,102,101
		1982 -	0 (1,097,824 requested)

Table 2

State Aid to the Milwaukee County Federated Library System

	Actual	Enabled
1973	$ 452,820	$ 951,307
1974	984,355	984,355
1975	1,028,831	1,028,831
1976	618,167	1,044,201
1977	860,069	1,074,759
1978	876,984	1,106,609
1979	907,580	1,134,475
1980	950,983	1,188,729
1981	947,839	984,211
1982	1,086,428	1,086,428
	$8,714,056	$10,583,905

Table 3
Federated Library System Trends

	1975*	1976	1977	1978	1979	1980**	1981
Staff Members(FTE)	39	38	40 1/2	37 1/2	32	31 1/2	31 1/2
Services							
No. of Delivery Stops	5,026	8,252	6,644	5,065	5,603	7,365	6,896
No. of Boxes Sorted for Delivery	11,309	13,323	17,189	21,891	21,383	23,733	21,378
No. of Reserves Filled	17,133	18,415	26,654	47,380	54,707	57,089	58,684
Over 60 Books Circulated	67,447	76,571	83,975	103,125	108,032	121,098	126,525
Videotape Circulation	554	7,544	6,808	7,536	9,316	8,611	12,934
Filmstrip Circulation		244	1,494	1,784	5,385	5,746	5,637
16mm Film Circulation		4,647	14,876	17,383	20,316	20,297	18,891
16mm Film Viewers		147,190	446,280	677,937	936,796	804,979	772,079
Filmstrip Viewers		5,237	38,998	67,899	105,273	130,495	123,416
Videotape Viewers	1,432	21,597	22,353	23,739	32,975	30,248	42,357
Numbered of Registrations	106,589	106,883	121,221	78,857	72,658	89,565	93,952

*Oak Creek & Hales Corners Join System
**Added Fox Point/Bayside Library to System - Jan. 1980

SOURCE: Milwaukee County Federated Library System

Table 4
Circulation Charges
per item

	High	Low
1961	.28	.22
1966	.35	.28
1970	.77	.39
1971	.88	.44
1972	.97	.49
1973	1.04	.52
1974	1.18	.59
1975	1.29	.65
1976	1.45	.73
1977	1.83	.92
1978	2.02	1.01
1979	1.89	.95
1980	2.02	1.01
1981	2.11	1.06

High: i.e., charge for MPL material circulated to a suburban resident from an MPL library.

Low: i.e., charge for MPL material circulated to a suburban resident from the residents own library.

Table 5
Current Coordinated Services

	Borrowing Privileges for MPL materials	Reciprocal Borrowing	Centralized Computer Checkout	Book Purchasing and Processing	Bookmobile	Over-60	Multi-Media	Research and Reference [4]	Centrex Telephone
System Members with Libraries									
Brown Deer	0	S	S	1	1	S	S	0/S	S
Fox Point/Bayside	0	S	S			S	S	0/S	S
Greendale	0	S	S			S	S	0/S	S
Hales Corners	0	S	S	0[3]		S	S	0/S	S
Milwaukee	0	S	S			S	S	0/S	S
Oak Creek	0	S	S			S	S	0/S	S
Shorewood	0	S	S	0		S	S	0/S	S
Wauwatosa	0	S	S			S	S	0/S	S
West Allis	0	S	S			S	S	0/S	S
Whitefish Bay	0	S	S	0		S	S	0/S	S
System Members without Libraries									
Glendale	0	S	N/A		0	S	S	0/S	S
Greenfield	0	S	N/A		0	S	S	0/S	S
River Hills	0	S	N/A		0	S	S	0/S	S
St. Francis	0	S	N/A		0	S	S	0/S	S
West Milwaukee	0	S	N/A		0	S	S	0/S	S
Not System Members in Milwaukee County									
Cudahy	0			0				0[4]	
Franklin	0							0[4]	
South Milwaukee	0[2]							0[4]	
Outside Milwaukee County									
Elm Grove	0			0					
Brookfield	0[2]								

S = uses services within the federated system
O = uses services outside the federated system

1. Empty cell indicates this service unused by this community.
2. Residents may borrow MPL materials at Central Library only.
3. Purchases suspended this year because of limited space. Expected to resume.
4. As of July 1, 1982, R&R is purchased by federated system for its members. Previously available to all county residents by county payment (outside federated system). Thus the first entry in this column indicates status prior to Jan. 1, 1982. The second entry indicates status after July 1, 1982.

3. ORGANIZATION

POLICY VARIABLES:

There are several variables that affect how a system is organized. They relate to the assumed population to be served, the type and level of services to be provided, and the desired relationship between the library system and other political and social entities. The variables--demography/geography of the area, service provision, governance, cost allocation, and statutory requirements--and their implications are discussed here. The choices made concerning each variable, when combined with choices regarding the others, form the structure of a system. The combinations, or alternative organizations, are discussed in the following section.

Geography/Demography

The State of Wisconsin Department of Public Instruction has established an objective of providing basic library service to all state residents. To this end, it has encouraged regional cooperation and growth of library systems but has not dictated the size (in population or area) of those systems. The statutes, as they stand, allow single-and multi-county federated systems and consolidated one-county systems. Although the law is phrased in "county" terms, it does not require that all communities within a county in which there is a federated system belong to that system. (However, there may be only one system in any county.) Thus, there is a fair amount of flexibility in determining the service area of a system to best meet the objective of providing basic service to all residents.

The law linking state aid to systems was passed almost a decade ago and systems have formed with self-selected members throughout the state. The Milwaukee system has been a single-county federated system with all but three communities (South Milwaukee, Cudahy, and Franklin) participating. Although it would be possible to alter the service area of the system (by merger with another County system, such as Waukesha or Racine, or by agreement with a county in which there is no system, such as Ozaukee) such alteration is unlikely for both practical and political reasons. The agreement between the Department of Public Instruction and the MCFLS under which this study was commissioned calls for review, analysis, and recommendations regarding the roles of governmental and public library agencies in Milwaukee County. Given the history and establishment of other systems, and the concentration of population in Milwaukee County, it is reasonable to restrict alternatives considered here to those based on the Milwaukee County service area, and to assume that membership in the system by any community will continue to be voluntary. We do not, however, exclude the possibility of some service exchanges outside the county (e.g. as that existing between The Milwaukee Public Library and Elm Grove and Brookfield).

Demographic changes may dictate changes in the relationships between and among federated system members over time. As populations and economic activities shift the demand for services and the willingness and ability to support services in any given community may also shift. A system's structure should be flexible enough to accommodate these changes as well as occasional changes in membership in a federated system. This flexibility is built in through choices about governance and cost allocation and will be addressed in those sections.

Service Provision

The institutional needs of a library system will vary greatly depending on the functions of the system: a system that simply links existing libraries and provides few or no services separate from those libraries will have minimal administrative and governing requirements. One that expands upon the scope of library services offered by its members will place greater demands for policy-making on its governing body and for administrative expertise on its executive (to date, the head librarian). There are two sets of choices to be made regarding service provision:

1) which services are to be offered by the system; and
2) whether system members must partake of all services or may choose only those they desire.

Choice regarding the first may change over time as desire for services and ability to pay for them changes. The existing federated system has established both links between member libraries (e.g. through centralized check-out) and services not provided by individual member libraries (e.g. multi-media service). Because the libraries in Milwaukee County established some inter-relationships prior to formation of the federated system it has to some extent allowed libraries to choose some coordinated services (e.g. interlibrary borrowing) without having to participate in all coordinated services. The circulation contract (and the research and reference agreement prior to 1982) operates outside the federated system. This need not necessarily be so: the federated system could define itself as the provider of all interlibrary services including many not provided by member libraries; conversely it could restrict its activities to links between and exchanges of services provided by member libraries or to meeting of minimum statutory requirements of a system.

Allowing member libraries to select among services rather than requiring participation in all system services might affect participation in the system, particularly if all interlibrary services are provided by the system. It may create some difficulty in administration and cost allocation: 1) some or many services may not realize economies of scale necessary to maintain them if selected by only a few members (i.e. the average cost of providing the service to a few people may be significantly higher than for a large population of users and may alter the attractiveness of the service); 2) cost allocation formulas may become very complex if the costs being allocated differ for each member community.

The two variables discussed so far, service area/population and service choice form the first tier of decisions affecting the organization of a library system. These two decisions about function will guide choices for the form of organization. Discussion of variables related to system form (governance, cost allocation, and statutory requirements) follows.

Governance

Governance is the method by which policy is made for a system. There are three major concerns in establishing a method of governance;

1) representation in governance of geographic, political, and demographic constituencies;
2) the relationship of governance to cost allocation; and
3) the relationship of governance to day-to-day operations and administration.

In addition, the configuration of the governing body can vary by:

a) size
b) appointing authority
c) extent to which composition of governing body is constrained by rule or law (e.g. representation of each system member, or a prescribed city-suburb balance, or representation of certain disciplines important to system management--librarians, accountants, etc.)
d) basis on which representation is sought (e.g. geography, population, user groups -- research, popular literature, multi-media -- age, etc.)
e) extent to which the composition is responsive to changes in membership or demographic shifts among members over time (i.e. balance between representing population and representing political jurisdictions).

The governing body could conceivably vary in size from a single person to a very large (20-25) committee or board. The size will likely be dictated to a large extent by the other factors listed above, i.e. perception that a certain number of constituencies require or will demand representation. However, it is generally recognized that very large bodies (e.g. over 12-15 members) often result in inefficient or ineffective governance, or both, and that very small bodies (e.g. less than 5) may not offer enough positions to represent most or all constituencies in a complex system or one with many members.

The appointing authority may be the same as the enabling authority, the financing authority, or the operating authority. The enabling authority is the state and like other specially enabled bodies (e.g. sewerage commissions, harbor commissions, etc.) a library board is technically an arm of the state. It is frequently recognized, however, that, because service areas are localized, the state and its appointing authority (usually the governor) may very well not be familiar enough with local affairs to appoint an effective representative body for a local service district.

Financing authority and responsibility is divided in the case of library systems. The state provides partial financing in return for certain organizational considerations, i.e. existence of systems or networks for service. Depending on whether local operation of a system member library (e.g. Fox Point-Bayside Library or a Milwaukee Public Library branch) is considered system support or whether only those funds paid to the system for system functions (e.g., the County research and reference payment prior to 1982) are considered system support, the financing authority may be viewed as a) member communities, county, and state or b) only county and state or c) only member communities and state.

The operating authority is not necessarily clear in library systems. If there are services provided only by the system (as opposed to individual member libraries) such as multi-media or over-60 services, it is the system as a conglomeration of its members with funding and authority from the state that operates itself. However, at a practical level, system operations (i.e. personnel, bookkeeping, etc.) may be (and currently are) carried out by a member on behalf of the system. The Milwaukee Public Library currently manages system operations despite a statutory provision establishing a federated system an an agency of the county [(Wi. Stats. 43.19(2)(a)]. Although the system reimburses the Milwaukee Public Library for system administration, the City Librarian (MPL's and the Federated System's current executive) is paid by and works primarily for the Milwaukee Public Library Board.

Appointment of a governing body could be accomplished in any of a number of ways:

1) by the governor;
2) by the county executive (current method in conjunction with some legislated representation);
3) by the Chief Executives of member communities;
4) by some combination of the above (appointments by an executive may or may not be subject to approval by the related legislative body);
5) by initial appointment by one of the above methods with succession determined by the original governing body;
6) by legislation, i.e. state law or the by-laws of the system dictate the membership by virtue of office (certain local political positions, librarians, etc.)

The current system board includes representatives of the State Legislature, County Board, library boards, and the City of Milwaukee Fiscal Liaison office, although of these only the County Board and library boards must be represented by current statutes: "At least 3 members of the (federated) system board, at the time of their appointment, shall be active voting members of library boards governing public libraries of participating municipalities, and at least one of these shall be a member of the library board governing the headquarters library. At least one but not more than two members of the county board shall be members of the system board at any one time."[Wi. Stats. 43.19(1)(a)]. The composition of the governing body could be determined by:

1) representation on the basis of population;
2) representation for each member political jurisdiction;
3) representation of a variety of positions, e.g., county board members, city council members, library board members, librarians, accountants, etc.
4) representatives of various levels of government (state, county, municipality) (not clearly separate from 3);
5) representation by some combination of these, either by the decision of the appointing authority or by formula wherein composition might change as membership and population changes.

The current system expands representation and expertise by having a technical advisory committee (to advise the policy-making library board) composed of librarians of member libraries.

Choice among these configurations will be closely tied to decisions about how system costs are allocated. Generally, those bearing costs of service expect representation on a governing body.

Cost Allocation

There are two main considerations in allocating costs: 1) deciding which costs are to be allocated among system members, and 2) deciding how to divide responsibility for those costs.

In a consolidated system all costs are likely to be system costs; in a federated system only some library costs will be system costs. Clearly, some services are entirely system costs -- those services provided by the system for its members and not provided by any individual member libraries (e.g. centralized check-out). Other costs may benefit both the system and the individual member library, and may be incurred on behalf of both, e.g. acquisition of reference materials by a headquarters library both improves the library's own collection and service to its municipal population and enhances service to system members. In addition, if some or all of that cost is offset by the system or its other members, the headquarters library has more of its own budget left for other things. Thus a system will very likely collectively be able to support a higher level of service than a group of individual libraries that do not share services and costs. Measuring that increment and allocating it to system members has been a sticky problem for the Milwaukee Federated Library System.

Costs can be divided into capital costs and operating costs, each of which may be either a sunk cost (past) or a future cost. Capital costs include the library building and equipment such as computers and copiers. Operating expenses include personnel costs, utilities, postage, and other expenses incurred in day-to-day operation. Library materials -- books, records, videotapes, etc. were considered operating costs by the State of

Wisconsin, which distributes aid on the basis of operating costs. In formulating or re-formulating a system, decisions must be made about which of these costs (and what proportion of them) will be regarded as system costs.

Costs can be calculated on either an average cost or a marginal cost basis. For example, all costs (capital and operating) of providing a service, say multi-media service, can be aggregated and divided by the number of uses of that service to determine an average cost. This assumes, of course, that the costs of that service can be separated from those of other services. In many cases, this assumption will be very questionable. However, there will be thresholds of service beyond which an additional cost increment (above the average cost) occurs. Say a new community joins the system, increasing demand such that a new employee or expensive new equipment is required to maintain the service. Those costs occur at the margin, that is, they must be met to provide the additional increment of service, and can be allocated wholly to that community (marginal cost) or can be rolled into total costs and divided by number of uses (average cost). The average or marginal cost question also occurs with the provision of each new service. All or most all buildings, equipment, and personnel needed to house and administer a service may be in place. The decision to offer an additional service increases total costs by a certain amount. Yet, the service could not be provided without those buildings, equipment, and personnel. A system must decide whether the costs allocated for use of that new service will be only the amount by which total costs increase (marginal) or will include a portion of the cost of those enabling personnel, etc. (average). With economies of scale, the average cost of each service may decline as the number of services increases.

In a consolidated system, where ownership and operating responsiblity for all library services in a county are assumed by one party all future costs will be system costs and all past operating expenses will probably be ignored; sunk capital costs may be addressed by 1) purchase of existing libraries and equipment by the consolidated authority or 2) credit to owning municipalities against future system costs in exchange for buildings and equipment.

In a federated system, member municipalities own and operate their own libraries. System costs will be for services (operating) and equipment and materials (capital) undertaken by the system and for administration (operating) of those services. Only in a very large system are there likely to be capital expenses for buildings. Questions regarding measurement of costs to be allocated in a system include:

1) whether a given cost is completely local, completely system, or some of each;
2) for those that are part local, part system, separating the proportion that is attributable to the system: methods for measuring this proportion may include:

a) the necessity of the item to the system, i.e., if it did not exist in a local library would it be acquired by the system
b) the proportion of use (or expenditure of time) that is on a system basis, e.g., if interlibrary borrowing becomes a system function the proportion of use (in time or number) that occurs outside the local library's jurisdiction;

3) whether some local costs e.g. acquisition of materials circulated outside the community should, for any purpose, be considered an expenditure in support of the system;

Once agreement has been reached on which costs are to be considered system costs, some determination of how those costs will be divided among member communities must be made. There are several possibilities:

1) by use -- each use is assigned a cost computed by dividing costs for a service e.g. multi-media by the number of uses of that service; the cost is assigned to the user's home municipality;
2) by population -- pro-rating all system costs according to member community's populations;
3) by property valuation -- pro-rating all system costs according to member communities' equalized assessed valuations, presuming use and ability to pay to be correlated to property value;
4) by some other measure of need or ability to pay, such as average or median income;
5) some combination of the above by either:
   a) a weighted formula applying these considerations to all costs; or
   b) applying a different basis to different costs, e.g., state funds might be used to support only system services that are mandated by the state, thus reducing charges to communities for those services; or materials costs might be allocated according to use and administrative costs according to population.

Statutory Requirements

State law dictates, to some extent, library system organization and service provisions--at least for systems desiring state aid, which is a strong incentive for establishing a system. The statutory provisions are detailed in the earlier section on Legislative Changes. They will not be repeated here, except to discuss certain key provisions.

While statutory requirements are viewed seriously, the alternatives enumerated in the following section are not limited to those explicitly enabled by the current statutes. Laws regarding library service have changed in the past and can be amended in the future to reflect changing priorities and circumstances. Indeed, some statutory changes may be regarded as minor and/or non-controversial given other economic or social changes that have occurred since the original statute was drafted. The difficulties associated with statutory change are recognized and will be weighed in assessing the attractiveness of a given alternative, but will not necessarily be assumed to preclude an alternative.

The two statutory provisions that may most affect decisions regarding the variables laid out here are:
1) participation by the county; and
2) the "maintenance-of-effort" provision.

Both are somewhat unclear. The statutes discuss library systems in"county" terms, i.e. single-or-multi-county federated systems and single-county consolidated systems. However, the section on financial support required in order to receive State aid, (43.24) requires that "municipalities having territory within the system" shall provide support for the system. In most systems the county may, of necessity, represent (financially and for governance) unincorporated areas. On the other hand, even in areas where there is not exhaustive coverage by municipal local government (cities and villages), the unit of the township carries out some local government functions. It is unclear whether, in rural areas with substantial stretches of unincorporated land, townships do or could contract for library services for their residents, if counties did not perform that function for residents of areas not served by local libraries. This question, of course, is beyond our terms of reference, and would require further research.

In Milwaukee County, all areas are incorporated and, thus, might be represented either by the county or the municipality but need not be represented by both. In the pre-1982 system, Milwaukee County was in the odd position of taxing for and supporting a service (research and reference) that it did not operate and, therefore, had no budgetary control over beyond appointing system board members.

The "maintenance-of-effort" provision requires that system members provide support sufficient (when added to state aid) to maintain mandated services and that such support must be at least equal to the average support for the last three years. Although there is no increase mandated to offset inflation, the provision, to some extent, assumes system growth. It does not allow a system to decide that, given a tight economy or changed population of users, a certain level of service is no longer desirable. The Department of Public Instruction does, however, have some discretion in determining which expenditures may be considered a contribution to the system for "maintenance of effort" purposes.

A question which has become current since Milwaukee County's refusal to contribute towards funding R & R services is: What constitutes "maintenance of effort". This question has to be resolved so as to ensure stable System-State relations in the future, and to enable continuity of the State aid on which the MCFLS depends for some of its essential services.

Answers to this question can be suggested on several levels: what is "maintenance-of-effort" in fact, in terms of the spirit and purposes of the legislation, or what is "maintenance-of-effort" in terms of the legal interpretation of existing statutes and regulations. The second question is beyond our expertise and, since it is under current deliberation, it is also outside the scope of this enquiry.

A variety of responses are possible to the first question. The interpretation of the statute regarding the County contribution to the System as the only manifestation of "maintenance-of-effort is open to serious question, certainly for Milwaukee County. It relates to the definition of Federated Systems in the statutes as county agencies, but, as we have suggested, this definition is actually redundant to the organization and operation of a Federated Library System in an urbanized area such as Milwaukee County.

Alternative views of maintenance of effort might include under this heading those contributions of funds or in-kind resources which enable the delivery of State-mandated services by a locality to the residents of other localities. Such contributions would include the share of local capital costs attributable to systemwide services, and the operating costs (the pro-rata share of average costs, or the total marginal costs) of providing services to non-local residents. An example of such services today is reciprocal circulation. Other services which the System provides today, like Over-60 or Multi-Media, could also become objects of "maintenance-of-effort" if they were funded on a cost-allocation basis by participating localities.

The existing statutes and some prevailing interpretations of the legislation and regulations inhibit the perspective on maintenance-of-effort suggested above, because of the implied role of the County. There is understandable reluctance to retreat from these interpretations, too, because the statutes apply homogeneously to all Systems in the State. However, it could reasonably be inferred that the references to the County role (apart from the definition of Federated Systems as County agencies) were intended for those areas--which, in fact, comprise the entire State with the exception of Milwaukee County--where the County has a dual role: it is an intermediate level of government between the locality and the State, and it is the local government for those areas which are unincorporated.

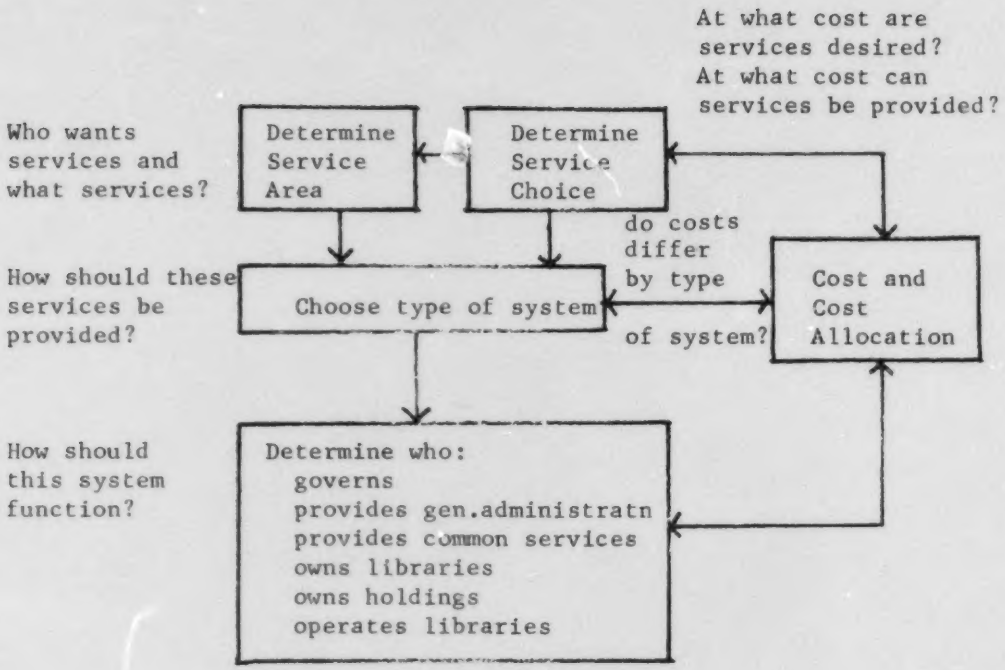
Accordingly, a possible solution which eliminates the barriers to redefining "maintenance-of-effort" in a more realistic fashion, may be to recognize the unique character of Milwaukee County. This can be done by interpreting the existing statutes (if that is possible) or revising them by new regulations or amending legislation, to distinguish between Federated Library Systems in areas containing a "first class city", and Systems in the remainder of the State. While the existing statute would continue to apply in the latter, in the former "County" and "localities" or "municipalities" should be used interchangeably. In this way, local contributions would satisfy the maintenance-of-effort requirements, as they reasonably should in a system where the County role is dispensable.

An alternative, more comprehensive, approach to the statutes would also offer the flexibility needed to enable the establishment and operation of federated systems without county participation. This would require interpretation or amendment of the statute to read "localities" interchangeably with "County", and define "localites" for the purposes of the statute as some minimum set of local governments which act together to establish and operate the system by mutual agreement, with the proviso that such an agreement, together with any non-participating municipalities which have their own libraries, must cover the entire area of one or more counties. The feasibility and appropriateness of such a basic revision, are, of course, questions which need further research.

DETERMINING ORGANIZATIONAL STRUCTURE:

The variables outlined in the last system provide the framework for the choices which will ultimately determine the organizational structure of a system. These variables can be considered sequentially, with the exception of cost and cost allocation, which influences, and is influenced by, each of the other decisions. The relationships are depicted on the following page.

FIGURE 1: ORGANIZATIONAL VARIABLES


At what cost are services desired? At what cost can services be provided?
Who wants services and what services?
Determine Service Area
Determine Service Choice
do costs differ by type of system?
How should these services be provided?
Choose type of system
Cost and Cost Allocation
How should this system function?
Determine who:
governs
provides gen.administratn
provides common services
owns libraries
owns holdings
operates libraries

Determining the service area requires choices about boundaries -- participation limited or not limited to communities within Milwaukee County -- and number of participants -- few, many, or all of the communities within the boundaries will participate. Services desired may be of two types:

1) those existing in local libraries that are extended to other areas, forming "linkages," e.g., book check out exists in each jurisdiction and is extended to other jurisdictions;
2) those that are centrally provided (e.g. the current over-60 and multi-media services) and which are not available in single jurisdictions.

There are also different levels of services: very few, an intermediate number, or many for either or both types of services. In actually forming a system, the services can be enumerated, as they are for current services in Table 5 on page 14. Given current budgetary problems and discussion with many participants, continued desire by all participants for all existing coordinated services at current costs and cost allocations is not assured.

Therefore, service needs are categorized here as few or many because different levels of service provision may require different organizational and administrative arrangements. The level of system services will also be related to whether or not all coordinated services operate within the system. For example, the county circulation contract (allowing suburban use of MPL materials) operates separately from the federated system. Until July 1, 1982 the research and reference contract was also separate from the federated system agreement. Thus communities not joining the system have access to the services available through the County contract. For those communities, the services are "one-way" between two parties rather than "reciprocal" among a large number of communities. The availability of coordinated services on this basis, however, may substantially reduce the incentive to join a system and may, in fact, reduce the number of participants in a system. Service areas and service choices might combine in the following ways:

Services

Participants:

	Linkage	Central	Both
few	few participant communities, basic coordinated services only	few participants, centralized services only	few participants, linkage and central services
some	some of eligible communities participate, linkage services only	some of eligible communities participate, central services only	some of eligible communities participate, linkage and central services
all	all eligible communities participate, linkage services only	all eligible communities participate, central services only	all eligible communities participate, linkage and central services

Each configuration may or may not include out-of-county municipalities. The service level (i.e. number of services and the extent of administrative demand) probably increases with movement from linkage services only to central services only to both types of services. The last could, in fact, mean all services. All of these combinations might or might not be structured to allow coordinated services outside the system.

Desire for services and willingness to participate in a coordinated service system will depend on perceived benefits and costs. The existence of a service network in Milwaukee County is evidence that many communities perceive that the benefits of participating in that network equal or exceed the costs, although there is evidence of increasing uncertainty in this regard. There is growing concern among communities whose members borrow heavily from other communities' libraries that the circulation charges paid are too high for the service rendered. In the current federated system, there are no cash payments from member libraries to the system; system money comes from the state. However, in the more loosely defined system, i.e., the network of all coordinated services, there are interlibrary payments for services such as interlibrary borrowing and bookmobile use. Adding assumptions about varying costs (low, medium, high) of various levels of service given various levels of participation would triple the number of options in the matrix above. However, costs

are neither as controllable nor as predictable (with so many variables) as are numbers of participants and services; in addition, opinion may vary greatly about whether a certain dollar cost for a certain service or group of services is high, medium, or low. Perceptions of relative costs may change over time as economic, social, and demographic contexts change.

The selected services may be provided in three ways:

1) Through a federated system (similar to or the same as currently defined in the Wisconsin statutes);
2) Through a consolidated system (similar to or as currently defined in the Wisconsin Statutes);
3) Through a different agreement or contract (or set of agreements or contracts) established among those parties providing, receiving, or exchanging services.

Within each type of system, four functions must be allocated:

1) Governance: who sets policy for the system?
2) General Administration: who keeps the books, hires personnel, etc., for the system?
3) Common Functions and Services: who provides agreed upon system services?
4) Operations and Maintenance: who owns, maintains, and operates the libraries and their local services?

Some of these assignments are inherent in the type of system chosen, for others there is choice. The possibilities and choices for a Milwaukee library system are detailed below.

	Governance	Gen'l Adm.	Common Func.	Oper & Maint.
Federated System	a) Co. Executive appoints w/or w/o approval of Cty Brd. b) Chief Exec.'s or reps of participants appoint c) Members legislated d) Combination of above	a) System b) County c) City(MPL)	a) System b) County c) Member communities	Member communities
Consol-idated System	County Executive/ County Board	County	County	County
Other "System"	Contracts/re-newable agreements	N/A	Communities party to the agreement/s	Communities party to the agreement/s

Cost allocation will also vary by type of system. Consolidated systems are clearly the easiest -- all costs are incurred by a single entity (the county) and are paid from the county's revenue (excepting state aid). However, sentiment clearly does not favor a consolidated system for Milwaukee County. Both public officials and librarians favor retaining local control of their libraries along with some system for sharing some services.

Cost allocation in a federated system and in the third type, a contractual system, could be done in any of a large number of ways. The three elements of cost allocation are:

1) type of costs - capital and operating
2) measurement of cost - average or marginal
3) assignment of cost -- user charges, population charge, property valuation charge, formula combining these

Systems of cost allocation can be constructed by choosing one or more items from each element, e.g., system operating costs may be divided on an average cost per unit of service basis and assigned to communities according to population. The total cost for a service or group of services and the distribution of that cost will be the ultimate determinant of a system's attractiveness for each of its potential participants. The next stage of this study will look at cost allocation in depth for a number of possible organizational structures for a Milwaukee library system. The current method of cost allocation will be examined and the fiscal effects of changing that method with or without other organizational changes will be analyzed. Examples of organizational scenarios that might be considered in detail follow.

ALTERNATIVES FOR SYSTEM ORGANIZATION:

The following examples represent combinations of choices on the dimensions discussed above. There are other combinations that may be seemingly as feasible or desirable as any of those below. However, though not exhaustive, the following scenarios should generate responses and suggestions regarding the intuitive attractiveness of these and other possible organizational strategies, which we will examine in detail in the next stage.

I. The Pre-1982 System

This scenario assumes the same basic relationship among parties as existed in the past.

Services & Participation:

- Eligibility limited to communities in Milwaukee county;
- Some, but not all, eligible communities participate;
- Both linkage and centralized services are provided in the system;
- Some coordinated services are available to non-members, including some outside the County.

Governance, Administration and Operations:

- o Milwaukee County retains governing authority;
- o MPL handles general administration through City of Milwaukee employees (e.g. the Library Director, etc.), except for funneling of money, which may continue through the County;
- o The system, as an entity, coordinates common functions and has its own employees to provide centralized services;
- o Member communities operate and maintain their libraries, and deliver local library services.

Costs and Cost Allocations:

- o System materials costs are not allocated because they are entirely offset by state aid;
- o Operating costs (reciprocal borrowing) are computed on the average cost per item and are allocated according to use; research and reference reverts to contract status, operates outside the system, and is paid for by the county.

Presumably, some fine tuning would be necessary to re-establish this system. It would most likely occur in cost allocation, especially the determination of which costs (or what proportion of all costs) should be considered system costs and how they are divided among participants.

II. The "System" System

This scenario allows a variety of assumptions about service area and level, but for this example, we assume a configuration very similar to the one described above, except that the County would have no role. Thus most of the characteristics are as enumerated above with 1) governing authority shifting to appointment by chief executives of participating communities or legislated membership and 2) payment of system costs being arranged in some way other than through the county. For this example, we assume that the system coordinates billing for interlibrary borrowing costs (now done by the county) and that member communities pay these costs directly to the system. Capital and operating costs for centralized services would continue to be paid for with state aid. Research and reference costs would be allocated by the system directly to member communities.

III. The "No System" System

A contract system as we have discussed it here would differ from a federated system in that it implies a lower level of service and less reciprocity than that envisioned in the current state statutes. Again, eligibility for participation and choice of services could vary. For this example, the following characteristics are assumed:

-
Services and Participation:

- o All communities in the metropolitan area are eligible without regard to location in Milwaukee County;
- o All eligible communities in Milwaukee County and some outside Milwaukee County participate in some of the service agreements;
- o Only linkage services are provided;
- o The services are provided by virtue of one or more agreement(s) or contract(s) for service provision and/or exchange. Each service could be the subject of a separate agreement, thus allowing each community to choose only as many services as it desires. Alternatively, all services could be packaged into one agreement; or some related services could be provided under a single contract. There is no central general administration--each community records use of its service by residents of other communities. There is no governing body -- the agreements are worked out by representatives of each community periodically (e.g. each year, every 3 years); member communities continue to own and operate their libraries.
- o There are no capital costs; operating costs are computed at the margin (i.e. considering all costs necessary to provide the extra increment of service for other communities) and are allocated on a per use basis.

This is a minimal "system," by which members share some services that exist now and others might be discontinued. All existing centralized services are either decentralized to participating communities or abolished, and no new services are undertaken. It is not a "system" as currently defined in the statutes. However, it might be, depending on the extent and definition of reciprocity and maintenance-of-effort, either in administering the current statutes or by amending them. Ultimately, in the most pessimistic projection, the economic attractiveness of this arrangement may be reduced by loss of state aid.

IV. The Librarians Dream

In contrast to the last example, this one is a maximal system, one with substantial independent functions. It could have the following characteristics:

-
Services and Participation:

- o All communities in the metropolitan area are eligible;
- o All or almost all municipalities in and adjacent to Milwaukee County participate;
- o Both linkage and centralized services are provided in the system;
- o All coordinated services occur within the system, i.e. members agree not to provide individual services to a non-member community.

-
Governance, Administration and Operation:

- o The system is governed by a combination of elected and library officials, some of whom are appointed by member communities' mayors and some of whom are designated as members in the system by-laws;
- o General administration and common functions are provided by the system, i.e., the system has its own offices, personnel, etc.;
- o Libraries are owned and operated by member communities, but the system has assets (materials) of its own.

-
Costs and Cost Allocations:

- o Both capital and operating system costs are computed on an average cost basis and are allocated by a formula or formulas based on a combination of factors including property valuation, use of system services, and population distribution.

V. The "Quasi-Consolidated" System

This configuration takes into account and corrects for several anomalies in the present MCFLS organization. These are essentially due to the "primate" nature of Milwaukee County and its member libraries, making the City of Milwaukee both the system's main supplier and user of library services. This includes services which traditionally were funded through the County (necessitating complex allocation adjustments) such as Research and Reference, services now provided by the MCFLS, such as Multi-Media, circulation, and circulation, and services provided by member libraries such as the County Book contract and reciprocal circulation.

Accordingly, we could envisage a System which both controls the sources of such services and delivers the services, while distinguishing them from local services (branch libraries and local circulation) which would continue to be controlled and operated by the localities themselves. In such a system, the downtown MPL's Research and Reference holdings would be acquired by the System, as perhaps would the building. Part of the MPL could be leased back to the City as a downtown branch library, and Milwaukee would continue to own and operate its other branches. Similar arrangements might be made (depending on the relative volume of system-related services--R & R, and reciprocal circulation) with major suburbs such as Wauwatosa and West Allis.

Such a System could be County owned and operated, i.e., a semi-independent County agency rather like the Consolidated System of the statute. Alternatively, it could be an approximation to the "Librarian's Dream" described in IV above, with independent status like the Metropolitan Sewerage District and taxing powers. This would have some advantages, such as removing funding for library services from local and/or County levy limits. However, the transfer of assets involved in establishing such a System would require substantial funds (as occurred with the

transfer of the Milwaukee Museum from the City to County ownership) unless such a transfer could be negotiated simply as a "book transaction". In a 1978 report Milwaukee's budget office analyzed the impacts of such a transfer and found that it could be advantageous from the City's perspective, but that analysis envisaged the City's being reimbursed for the assets' capital value. If this were to take place, the source of the funding is questionable in these times of fiscal stringency.

-

Services and Participation

- o All communities in the metropolitan area are eligible, but if it were a County run System Milwaukee County localities would participate under a standard arrangement, while outside communities would need special contracts to allow for the membership in their area's Federated System;
- 0 Both linkage and centralized services are provided by the system;
- o Coordinated services occur within the system, but communities may have the option (as today) to select particular combinations of services or to opt out of particular services.

-

Governance, Administration and Operation

- o If it is a County owned and run system, it would be governed by a County commission appointed by the County Executive, like the Parks & Recreation Commission, subject to review by a committee of County Supervisors and ultimately by the County Board. If it is an independent agency, its governance would be as in IV above.
- o General administration and common functions are provided by the system, i.e., the system has its own offices, personnel, etc.
- o Suburban libraries and Milwaukee's and Wauwatosa's branch libraries are owned and operated by their respective communities. Main libraries and R & R holdings are owned and operated by the system.

-

Costs and Cost Allocations

- o All system service costs would be separately budgeted within the system. The system would be funded by any combination of user fees, tax levies, and State aid.

Scenario V could be implemented under the current statute as a Consolidated System if the County were assigned its statutory role; an autonomous system, however, would require amending legislation.

The first and second examples may be enabled by current law, although there is some ambiguity in the legislation and some discretion in interpreting the legislation is left to the Department of Public Instruction. The third example could be allowed under current legislation, but it is unlikely given prevailing readings of the maintenance of effort provision. The minimal system is unlikely to require the levels of support of the current system. Example four would qualify for state aid on the basis of communities' substantive participation. However, the absence of a county role might be a problem under present interpretations of the statutes.

Evaluation

To evaluate the alternative organizational configurations presented above, we have to consider what are the objectives that an interlibrary organization or reorganization must accomplish. These can be grouped under three main headings: feasibility, effectiveness, and equity.

(a) Feasibility: This is a necessary, though not a sufficient, condition for any organizational transformation. A proposed organizational form may be the best in the world, but if it is impossible to bring about under any current or forseeable circumstances, it does not warrant further consideration. Constraints to feasibility may include political orientation, existing institutional interests, legislative and statutory limits, and unavailable funds.

(b) Effectiveness: Effectiveness in providing library services and coordinating the delivery of services others provide is one of the main objectives of an interlibrary system. Each service has its own criteria of effective operation, but all services have many characteristics in common. These include the fact that relative simplicity of operation is likely to be more efficient and cost-effective, though trade-offs in quality of service and penetration must be kept in mind.

(c) Equity: A preferred organizational configuration must reflect the realities of the differences among the units and localities making up the interlibrary system. The governance of such a system must be capable of developing policy that takes these differences into account, while operating the system on the basis of a consensus which ensures perceived fairness in the delivery of services and in the allocation of their costs.

Below we will briefly assess the possible organizational structures presented in I-V above, on these criteria. The summary evaluation is shown by ranking the alternative forms of organization in Table 6 below.

I. The Pre-1982 System:

(a) Feasibility: The essential difference between the pre-1982 system and the current status quo is the role of Milwaukee County. The fiscal stringencies of 1982 only culminated a process which had been under way for some time, and provided the final incentive for disengaging from a commitment which had long been perceived as too onerous for its political benefits. In the light of our discussions with knowledgeable informants, we believe it is unlikely that the County's traditional role can be restored in the forseeable future. Even if this took place, the system's latent problems would remain, to be a source of continuing instability. Since the feasibility condition seems unfulfillable, evaluation of the other criteria is redundant.

II. The "System" System:

(a) Feasibility: This organization is eminently feasible, resembling the status quo except for some adjustments which are needed for long-term stability. These would involve renegotiating service cost estimating and allocations, and restructuring the System's governance. All these can be accomplished through appropriate action in the State legislature, and among participating localities in the Milwaukee metropolis.

(b) Effectiveness: This organization would continue to enjoy the benefits of scale and the elegibility for State aid of the current MCFLS, and its administration would be simplified by elimination of some current anomalies.

(c) Equity: How the governance of the System is to be reconstituted to fairly represent the different localities and their interests, while avoiding the perception that it is dominated by its major participant in terms of size, the city of Milwaukee, will be critical. We believe that a method of representation can be devised which accomplishes this, perhaps in combination with by-laws requiring a 2/3 majority for critical decisions.

III. The "No-System" System

(a) Feasibility: This configuration is feasible on the face of it, though it would involve a loss of State aid, and might result in a significant reduction in services.

(b) Effectiveness: Such a system could provide the services opted for by its participants, though cost-effectiveness would no doubt suffer due to losses in economies of scale. Administering the multiplicity of contracts in such an approach would involve complex bookkeeping to an even greater degree than at present, and it is easy to see that the periodic renegotiations of such contracts could become a political and administrative nightmare.

(c) Equity: The "No-System" system might be regarded as the most equitable organizational arrangement, since no locality would get any services it did not explicitly want and contract for. On the other hand, some groups (e.g., the elderly) and some localities today receive services as a direct result of the economies of scale achieved by the System and State aid; these may well be deprived of such services if the System were replaced by something like the assortment of bilateral and reciprocal contracts which preceded it.

IV. The "Librarians' Dream

(a) Feasibility: Full inclusion of communities outside Milwaukee County presents problems, as they are in the service areas of other federated systems. To enable this would require major legislative changes, which would have statewide impact. Accordingly, we estimate that the prospect of such legislation being presented or passing is unlikely. While this form of organization would probably ensure the highest level of services, they would also be significantly more costly than at present, and the willingness of political bodies to allocate the increased funds this would require, either at the State or local level, is doubtful.

(b) Effectiveness: This organizaton would have the virtues of simplicity. But in divorcing System services (such as R & R) from MPL's "local" services (e.g., circulation) an autonomous system like this one would sacrifice important economies of scale. In setting it up, too, serious issues of allocation (such as what parts of the existing collections should be "System" assets and which local ones) might arise which could be difficult, if not impossible, to resolve satisfactorily. This problem also came up, for example, in setting up the metropolitan library system in Toronto, and only proved tractable there because of that area's strong tradition and institutions of metropolitan government. Cost-effectiveness compared to current operations might also be reduced by the need for a separate "System" bureacracy.

(c) Equity: In principle, this should present no problems. See II above.

V. The "Quasi-Consolidated" System

(a) Feasibility: This organizational structure differs from IV above primarily in two respects: it involves major building and asset acquisitions by the System, and it may involve an active County role as political "supervisor" of the system. In today's environment of fiscal constraint, it is difficult to envisage a source of the funds required to make transfer of these assets possible (a la the transfer between the City of Milwaukee and Milwaukee County of the public museum some years ago). On the other hand, if such a transaction were fiscally feasible, it is not beyond the bounds of possility for the County to assume responsibility for metropolitan interlibrary services, providing the Board of Supervisors will excercise effective policy and budgetary control. On the question of whether the County would regard this responsibility as an opportunity or a burden, opinions differ.

(b) Effectiveness: The Comments under IV(b) above hold true here too, in even greater measure.

(c) Equity: County governance of the System would be a simple and clearly equitable solution to the problem of representation. It would also provide a highly appropriate level of political accountability, which is not matched by any of the other options. A non-County, "special district"-like System, on the other hand, would not be superior on this criterion to any of the other options.

Table 6
Summary Evaluation of
Alternative Forms of Organization

Criteria		Alternative Forms of Organization I	II	III	IV	V Co.	V "District"
a.	legislation-State		3	1	4	2	5
	local political	X	1	2	3	4	5
	funding		1	3	2	5	4
b.	simplicity		4	5	3	2	1
	economies of scale		1	5	2	3	4
	provision of services		2	5	1	2	1
c.	representation		1	1	1	1	1
	accountability		3	1	3	1	2
	- ranks ("score"- lowest is best)		16	23	19	20	23

Note: This summary is for illustrative purposes only. The ranks merely indicate a preference order among the alternatives and the differences between the numbers should not be interpreted as reflecting "intervals" or indexes of performance on any of these criteria. The final "scores" ignore this qualification; they also do not include any possible weighting differences to reflect differences in relative importance of the criteria. For example, if accountability and provision of services were considered critical (and therefore weighted, say, at 3 x any other criterion) the final ranking of V (County) would be higher. Nevertheless, sensitivity analysis of alternative "weights" on these lines suggests that the superiority of II is fairly robust, if the rankings are accepted as reflecting real preferences.

Summary and Conclusions

Of the alternative ways of reorganizing the MCFLS which have been presented, Option II, the "System" system, appears both feasible and preferable in terms of the criteria identified above. It is, in fact, the alternative closest to the configuration under which the MCFLS is operating today. But some changes would be required in order to adapt it to current and expected conditions and to provide a prospect of long-term stability. These are the following:

1. Statutes:

The existing legislation defining and regulating Federated Library Systems would have to be reinterpreted or amended to enable a system without County participation and give it eligibility for State aid.

2. Governance:

Governance of the System would still be vested in the MCFLS Board, but the composition of the Board and the way it operates would require revision to recognize the reduction or absence of the County's role. A reconstituted Board should recognize the distribution of interests between localities of different sizes and functions in the system, and should avail itself of elected officials to provide some political accountability, and of some representative library administrators for their expertise. Legally the System should be an autonomous agency, but without taxing powers, so that its funding sources will be its participating localities and the State.

3. Operations:

While under reorganization there might be an opportunity to clarify and distinguish between System and MPL responsibilities, essentially the overlap between System administration and senior MPL personnel can continue unchanged, as no problems have been observed here in this arrangement, which enables significant savings. The "doubling" of senior MPL personnel both recognizes the unique "primacy" of Milwaukee in the Federated Library System, and utilizes it to advantage, avoiding the costs which would be incurred by a duplicate system bureaucracy. However, another major source of potential problems in the MCFLS are the way service costs are computed and allocated among participants. This will also have to be changed if the system is to be assured of effective operations and long-run survival. The detailed analysis of cost computations and allocations will be addressed next.

4. COST ALLOCATIONS

Determining and allocating the costs of various library services provided by the System and by some of its members is one of the basic decisions which affect System member interactions and define System policy. Cost allocations in the MCFLS have also been identified as a major source of past problems, as evidenced in repeated attempts to revise the R & R formula--all in vain. They are also an area of latent problems. Symptoms of future difficulties are the "cap" on the current reciprocal circulation rate, attempts at substitution in the form of book rentals, the duplication of some "high demand" MPL holdings by some suburban libraries, and the consideration by others of withdrawing from the reciprocal circulation contract and/or building their own libraries.

Before proceeding to a detailed analysis of the implications of alternative approaches to cost allocations for the various services provided by the System and its members, we must explain the conceptual underpinnings of our analysis. As suggested previously, the basic factors in cost allocation are: which costs are allocated; and how are they allocated. There is no one right or true way of allocating costs, and the choice between alternative approaches is essentially judgemental, and will obviously be influenced by how the results of different methods will affect the various interested parties.

As an example, we can take the question of how to reimburse or compute the costs of travel by car. In computing reimbursement for business travel or for work-related travel in one's own atuomobile, a mileage rate is usually derived by computing all the costs of the car and its operation over its lifetime and dividing these by the number of miles it is expected to run. The conventional 20¢ per mile rate, then, is an overall average cost which ensures that the provider of the service will eventually recover all the expenses involved. On the other hand, if you are deciding whether to take a trip or not, or lending your car to a friend, you are more likely only to take the cost of the gasoline and possibly some maintenance and repairs into account, since the fixed costs of acquiring the car, and paying for insurance, vehicle licence etc., have been incurred anyway irrespective of the additional distance the car will travel. Accordingly, you allocate a cost close or equal to the actual marginal cost of the service.

A third way of allocating costs can be substitution cost to the user of a service: in other words, how much would it cost the user to provide the service himself, or to buy the service from an alternative source? If you were giving someone a ride to Chicago, for example, you might charge them, on this basis, just less than they would have to pay for a rented car and the gas for the trip.

In the analysis that follows, we will project the results of estimating and allocating costs by each of these alternative methods. However, some caveats are in order. First, the cost allocation simulations that follow do not include capital costs of buildings, plant, or major equipment, but are based on the operating costs reported by responding libraries and included in their annual budgets. This omission will have several consequences. One is to underestimate actual per unit service costs, if we wish to include under such costs the value or amortization of capital expenditures. On the other hand, often such capital costs are disregarded as "sunk funds", on the premise that, since they have been spent, they are irrelevant to future decisions.

Another result may be that economies of scale (which tend to become more noticeable as the organization becomes larger) are underestimated, and, consequently, real marginal costs may be a smaller proportion of overall average costs than they appear to be when estimating operating costs alone. Finally, when assuming that substitution costs are the same as an organization's own operating costs, we ignore the capital investment that such substitution may require. For localities, for example, that do not have their own libraries, the cost of providing a unit of book circulation themselves instead of using the System's services would not be limited to the equivalent of the marginal (or even average) per unit operating costs of similar participating libraries, but would have to include the cost of building their own library etc.

Ideally, we would want to estimate average costs per unit of service, and the marginal cost for each additional unit of service provided (see figure 2 below). Unfortunately, this is rarely possible even with quite good data, and with the information we received from responding libraries (see pp. 43-51 for a more detailed discussion) it was impossible. Failing an accurate estimate of marginal cost, the next best approach is to try to estimate the average cost of the "exported" service, as distinct from the cost of those services consumed by the locality itself. Depending on the available data, such an estimate may also depend on a number of assumptions, one of which is the existence and degree of economies of scale. These may be so great as to enable an organization to provide

additional units of service at essentially no additional cost (line B in Figure 2 below), or they may be so small as to make the cost per unit of service identical for every volume of services (line A in Figure 2 below). In the absence of information on local, as distinct from total, service costs, we have assumed some degree of economies of scale between these extremes (line C in Figure 2 below).

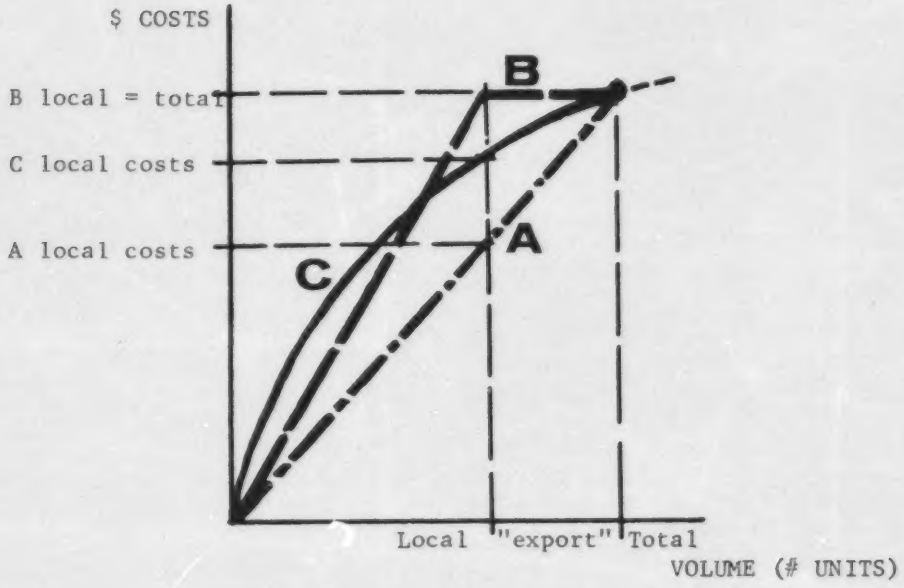


FIGURE 2: ECONOMIES OF SCALE

In the preceding discussion, we have related cost allocations to the actual costs--computed in different ways--of providing services, and the actual distribution--between service providers and service consumers--of units of service use. Of course, there are still other ways of allocating and distributing the costs of public services, which are independent, to varying degrees, of the costs and use of such services. Like many local services, library services, too, could simply be paid for out of a general fund. The costs of such services, then, are allocated between the contributors to such a fund, who may be localities or area taxpayers (as in the case of the previous County R & R contribution, for example) or State taxpayers at large (for services funded by State aid). Here the relative wealth of different localities might play some redistributive role (this is reflected in differences in per-capita assessed values), or other allocation formulas can be developed with include indexes deliberately designed to reflect policy considerations. Such considerations could include need for the service (+), ability to pay (-, measured by some index of poverty or deprivation), or other policy indicators.

The analysis that follows discusses cost allocations for each of the services currently provided by the MCFLS and/or its members. Where appropriate (as, for example, for reciprocal book circulation) we will explore the possible outcomes of cost allocation by each of the approaches outlined above. In other cases discussion will be more limited to a narrower range of relevant options. In all cases, it must be emphasized that the purpose of this analysis is simply to display the implications of alternative cost allocation approaches, and not to suggest that one is better than any other. There is no one method that is true or correct, and an agreed upon allocation formula can only result from the interplay of all the affected interests.

CIRCULATION:

Cost Allocation in Other Places

In the course of our work, several people suggested we look at how other library systems allocate costs, especially for reciprocal borrowing. Systematic surveying of other systems would have been too time-consuming to undertake in the context of this study. Past examination of other service delivery systems, including structured comparison of systems in many cities, indicated that (1) systems evolve over time in response to a large number of local variables, and (2) that the relationships between the variables and the systems are synergistic, i.e., altering one of many variables might have resulted in a completely different system. Thus, a system's organization and operating characteristics evolve in response to local stimuli.

This does not necessarily mean that the lessons of experience learned by other systems have no application here. On the contrary, specific operational characteristics of other systems could influence decisions to change the Milwaukee System, at least by offering new ways of looking at old problems. It is unlikely, however, that mechanisms used in other systems will be wholly transferable.

With these constraints in mind, we did contact two system directors (recommended by the Wisconsin Department of Public Instruction, Division for Library Services) who have looked at cost allocation procedures. (Robert Rohlf, Hennepin County, Minnesota, and Lester Stoffle, Suburban Library System, Burr Ridge, Illinois) Both of these systems provide reimbursement for part of a supplier's reciprocal borrowing costs using state aid. In both cases, the reimbursement is partial because there is not enough state aid to cover total costs. The North Suburban Library System has a very complex formula for determining a library's reimbursement. It seems that the system continues to use the formula in part because no one really understands how it works, and inequities, if any, are obscured by its complexity. Some of its salient features are the following:

cooperation factor: the average number of interlibrary or reciprocal loans made by system members. Reimbursement is made only for those loans above the average.
burden: the ratio of reciprocal borrowing to local circulation
ability to pay: the assessed valuation divided by the population served for each community.

This system assumes that Research and Reference (R & R) use is tied to book use--those who borrow books ask questions--and adjusts the reimbursement for reciprocal borrowing to account for R & R.

It is especially difficult to draw comparisons between this system and the Milwaukee System because Milwaukee's members are far more heterogeneous than North Suburban's membership. The latter is made up of many suburbs closer in size and character than the Milwaukee County communities in the Federated Library System. In the North Suburban System there is no large central library offering a wide variety of services and a collection substantially different from other libraries like the Milwaukee Public Library.

We also discussed cost allocation in other systems; most seem to have variations on those discussed above--reimbursement by the system after reciprocal borrowing reaches 10% of local borrowing (New York), reimbursement through formulas simpler than the North Suburban formula etc. A notable exception is Denver, which, when faced with cost allocation problems, instituted direct charges to non-resident users.

These examples have provided some interesting insights on approaches to cost allocation although, as we stated earlier, none is likely to provide the easy answer to Milwaukee's difficulties because of differing circumstances.

Assessing Current Costs: Collecting Data

In order to examine current cost allocation and to assess the potential effects of changing allocations, we needed budget and service data for each library. The information was collected through a mailed questionnaire asking for data on reciprocal borrowing and other services, budget breakdowns by service, and some estimate of the cost of operating a library for local use only. The amount of information and the level of detail received from each library varied greatly. Several librarians hesitated to assign costs to specific services, often because small libraries use staff for all services and the division of their time between services is difficult to estimate. Several expressed concern over the comparability of data among libraries. It has become painfully clear that each library in Milwaukee County operates somewhat differently from each other library. Budgets do not always include the same items: in at least two instances, respondents noted that their local government provided services (e.g., payroll, personnel, grounds maintenance, etc.) that do not appear in the library budget. Thus, the budget does not necessarily reflect true costs and, more importantly, may not reflect the same costs as the budgets provided by other respondents. In addition, we must recognize at the outset that the libraries in Milwaukee County are not comparable in other ways: they vary greatly in size and purpose. They can be grouped into three categories:

(1) Large, multi-service library--Milwaukee Public is alone in this category.
(2) Medium sized, multi-service library--Wauwatosa and West Allis fall in this category.
(3) Smaller, more limited service libraries--the remaining suburbs are grouped here although they vary somewhat in size and in the degree to which they provide services other than book circulation.

Libraries can certainly be grouped in ways other than size; for example, by those who are net exporters of circulation service and those who are net importers. These other groupings will become clearer in later presentations of our analysis.

We do not claim that the analyses presented here are necessarily precise; we recognize problems in comparing one library and its costs to others, and we have, with a few exceptions, taken the information given to us at face value, accepting its veracity and the reasonableness of the methods used to arrive at the figures. In a few cases we have adjusted figures to account for noted factors that clearly harm the comparability of the data. The exceptions are noted and the adjustments explained.

Despite the difficulties of the data, we believe the analyses performed and reported here are important, for a number of reasons:

(1) In almost any comparison, there will be inconsistencies in the data, i.e., there are always excuses not to compare entities. We believe the assumptions of non-comparability have prevented participants in the Milwaukee System from examining carefully the relationships between its members. This analysis begins to remedy this shortcoming.
(2) The analysis presents many different ways of considering costs. Even if the data used are not wholly accurate, the analysis presents several methods of considering cost allocation. Readers need only substitute other data (if and when more acceptable data are available) to see how differing assumptions alter the outcome.
(3) The analysis makes very clear the usefulness of understanding how one's budget is spent. Although we accept that the analysis may not be wholly accurate, we believe it gives a reasonable approximation of the relationship between members. Thus, at a minimum, the analysis presented here should broaden the perceived alternatives for cost allocation and increase understanding of the effects of the current systems.

Circulation and Circulation Charges

To understand circulation patterns in the metropolitan area, we constructed a picture of the flow of books between communities. Table 7 shows how many books (in thousands) each community borrowed in 1981 and from whom. Note that the biggest suppliers are Milwaukee (65.7%), Wauwatosa (12%), and West Allis (10%). The biggest receivers are Milwaukee (24.2%), Shorewood (10.9%), and Whitefish Bay (10.9%). In any flat rate cost system, the more important measurement is the difference between the units supplied and the units received. These differences can be seen in the table and will be addressed specifically as we consider methods of cost allocation.

Circulation charges are currently paid by the receiver to the supplier. The current system is essentially a flat rate system, except that Milwaukee charges a different fee for its materials when they are checked out of a non-Milwaukee agency. The reason for distinguishing betweeen these types of circulations is not clear. Although Milwaukee charges half as much for books checked out of non-Milwaukee libraries, the costs associated with such circulations may in many cases be higher than for books checked out of Milwaukee libraries because additional transport is involved. In the analysis that follows, we have ignored the current distinctions between "high rate" and "low rate" circulation, and have computed an average rate per circulation unit, which varies according to the different assumptions on which the computations are based.

TABLE 7: INTERLIBRARY CIRCULATION 1981 (in 1000)

LIBRARY ALLOCATION FORMULA

FUND NAME: INTER-LIBR SERVS 80-81

LOCAL RECVG: / LOCAL SUPPL/	BROWD	FOBAY	GRNDL	HALCO	MILWK	OAKCR	SHOWD	WAUWT
BROWD	0	.993	.113	.045	27.54	.052	.406	.309
FOBAY	.457	0	.058	.03	3.758	.042	.843	.285
GRNDL	.077	.171	0	.158	4.904	.31	.158	.244
HALCO	.008	.031	.656	0	2.828	.029	.047	.08
MILWK	12.27	28.22	15.20	23.13	0	5.555	99.95	43.54
OAKCR	.046	.125	.454	.077	7.328	0	.13	.635
SHOWD	.015	.182	.007	.003	3.83	.005	0	.104
WAUWT	.426	.502	.369	.499	105.7	.335	.733	0
WALLI	.344	.379	1.043	1.414	70.67	.343	.574	6.106
WHIBA	.217	7.251	.039	.038	3.055	.031	1.977	.121
GLNDL	0	0	0	0	0	0	0	0
GRENF	0	0	0	0	0	0	0	0
RIVHL	0	0	0	0	0	0	0	0
STFRA	0	0	0	0	0	0	0	0
WMILW	0	0	0	0	0	0	0	0
CUDAH	0	0	0	0	1.57	0	0	0
FRANK	0	0	0	0	0	0	0	0
SMILW	0	0	0	0	.361	0	0	0
ELMGR	0	0	0	0	.179	0	0	0
BROOK	0	0	0	0	0	0	0	0
TOTAL COLS	13.86	37.86	17.94	25.39	231.7	6.702	104.8	51.42
TOTAL ROWS	35.00	16.74	6.985	16.63	630.0	12.72	5.398	115.2

INTER-LIBR CON'T

	WALLI	WHIBA	GLNDL	GRENF	RIVHL	STFRA	WMILW	CUDAH	FRANK	SMILW	ELMGR	BROOK	TOTAL
BROWD	.245	.336	4.067	.114	.854	.005	.001	0	0	0	0	0	35.08
FOBAY	.127	2.337	6.855	.182	1.649	.115	0	0	0	0	0	0	16.74
GRNDL	.839	.124	0	0	0	0	0	0	0	0	0	0	6.985
HALCO	1.348	.046	.013	11.53	.003	.005	.005	0	0	0	0	0	16.63
MILWK	28.82	100.5	55.31	90.27	3.099	29.73	4.134	8.802	31.93	1.847	39.95	7.701	638.0
OAKCR	.199	.116	.061	3.097	.001	.15	.003	0	0	0	0	0	12.72
SHOWD	.047	.824	.332	.018	.017	0	.001	.001	.006	0	.001	.005	5.398
WAUWT	4.187	.77	.56	.557	.014	.075	.242	.104	.041	.001	.023	.036	115.2
WALLI	0	.33	.367	9.442	.042	.062	4.267	.035	.242	.001	.004	.016	95.68
WHIBA	.094	0	8.008	.06	.822	.005	.002	0	0	0	0	0	21.72
GLNDL	0	0	0	0	0	0	0	0	0	0	0	0	0
GRENF	0	0	0	0	0	0	0	0	0	0	0	0	0
RIVHL	0	0	0	0	0	0	0	0	0	0	0	0	0
STFRA	0	0	0	0	0	0	0	0	0	0	0	0	0
WMILW	0	0	0	0	0	0	0	0	0	0	0	0	0
CUDAH	0	0	0	0	0	0	0	0	0	0	0	0	1.57
FRANK	0	0	0	0	0	0	0	0	0	0	0	0	0
SMILW	0	0	0	0	0	0	0	0	0	0	0	0	.361
ELMGR	0	0	0	0	0	0	0	0	0	0	0	0	.179
BROOK	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL COLS	36.20	105.4	75.57	115.3	6.501	30.15	8.655	8.942	32.22	1.849	39.97	7.758	958.2
TOTAL ROWS	95.68	21.72	0	0	0	0	0	1.57	0	.361	.179	0	958.2

TABLE 7 CONTINUED

In order to assess the effects of the current pricing system and to establish a basis for alternatives, we examined the budgets and the levels of service provided by each library (i.e., those that furnished data) to establish a cost per circulation for each library. We wished to distinguish between services, the main ones being (1) circulation and (2) research and reference. This distinction was made somewhat difficult because several libraries did not break down their budgets according to services provided. We did receive such allocations from one library in each of the three size groupings: Milwaukee, Wauwatosa, and Fox Point/Bayside. While we recognize that other libraries' costs for each service may be somewhat different from these libraries, we believe it reasonable to assume that the proportion of total costs assigned to circulation (as opposed to research and reference) will be similar for libraries within a size group. We believe this for thefollowing reasons:

(1) As libraries get larger, they seem to diversify their services and thier collections, probably putting greater resources into research and reference; libraries of roughly similar size tend to offer roughly similar services.
(2) Libraries of similar sizes should realize roughly the same economies of scale.

The proportionate share of budgets going into each service in the libraries for whom we had such allocations bear out the first assumption:

	Circulation	R & R
Large Libraries (Milwaukee) -	58.5%	41.5%
Medium Libraries (Wauwatosa) -	63.0%	37.0%
Small Libraries (Fox Point/Bayside) -	71.0%	29.0%

We made the following additional assumptions in determining those proportions:

(1) For small and medium libraries (Fox Point/Bayside and Wauwatosa) 10% of the materials acquisitions and materials processing charges were assigned to research and reference. This assumes that small libraries have, proportionally, smaller reference collections than large libraries, that there is some overlap between acquisition and processing for circulation and acquisition and processing for research and reference, and that Wauwatosa's reference collection is large enough that some or most of its reference materials (acquisition and processing) were assigned directly to research and reference.

(2) No adjustment was made in MPL's acquisition and processing costs because the Research and Reference figures appeared to be based on the County R & R formula, which includes acquisition and processing of reference materials. However, other service costs, such as bookmobile, may be included in part or in total. As Table 8 below shows, Milwaukee's per unit rate is the highest of all participating libraries. There may be some computational and/or objective reasons for this:

(a) The computations we have described may have assigned to the circulation rate a higher proportion of overheads and/or other services in Milwaukee's case than in the case of other libraries, which have fewer other services and where circulation makes up a far higher proportion of their total budgets;

(b) MPL's costs may actually be higher; this may be because it is a larger and more complex operation, and its different needs may be reflected in certain types of higher costs such as higher administrators' and professionals' salaries.

Using these proportions, we computed the dollar amount of each library's budget that could be assigned to circulation. To get a cost per circulation we divided that amount by the number of books circulated to both residents and non-residents. The resulting per circulation costs and explanations of adjustments made to arrive at them appear below. Calculations appear in Appendix A.

TABLE 8
Average Cost/Circulation

Brown Deer[1,2]	0.98
Fox Point/Bayside	0.89
Franklin [3]	1.07
Greendale [1]	0.71
Hales Corners [1]	0.79
Milwaukee [1]	1.60
Oak Creek	1.04
Shorewood [1]	0.60
Wauwatosa	0.63
West Allis [4]	1.18
Whitefish Bay[1]	0.56

[1]For all communities showing contract costs in their budgets, we deleted these before computing average costs. Contract costs paid do not contribute to operation of the supplier's library.
[2]We increased Brown Deer's total budget by 5% to adjust for administrative, bill-paying, and grounds maintenance costs provided by the village.
[3]Franklin's calculation reflects only local circulation because Franklin is not a member of the federated system.
[4]We increased West Allis' budget by 25% of regular salaries to account for fringe benefits, and by 5% of total budget to account for bookeeping and personnel costs, both of which are provided by the City.

In addition to measuring costs per unit of circulation, we sought to distinguish between units produced for a library's own community and those provided to non-residents. Here again, we had difficulty because most respondents declined to speculate or estimate the difference in cost between operating their library for local use only and operating it for both local and system use. Some suggested that perhaps their costs would be no different: any savings might be offset by costs to replace aids from the system, most notably the centralized checkout system. We believe, in fact, that on an ongoing basis, any of the libraries would realize some savings by operating on a local use basis. There might be immediate capital expenditures to replace system-provided facilities, but on an ongoing basis the total costs for local circulation would be lower than the total costs for all circulation. Because libraries, like most other services, enjoy economies of scale, the reduction in costs would be unlikely to be proportional to the reduction in number of circulations. This relationship, between cost per unit and number of units provided, is a well accepted principle of economics; it is depicted below.

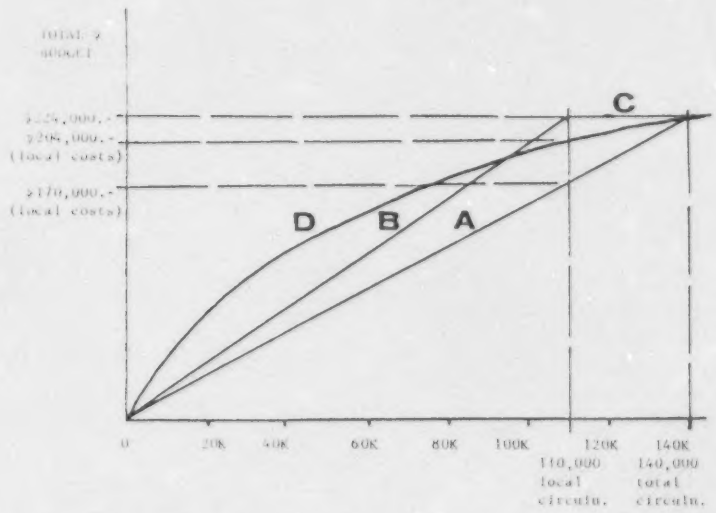


FIGURE 3: ILLUSTRATION - LIBRARY "X" CIRCULATION COSTS

Example: Library X has a circulation budget of $224,000. It circulated 110,000 books to residents and 30,000 books to non-residents for a total circulation of 140,000 books circulated.

If you assume that the per circulation cost is the same for all units of service, the relationship between cost and number of units is expressed roughly by line A.

If you assume that the costs of providing local service are the same as the costs of providing local and non-local service, the relationship is depicted by either line B or line C. Line B shows costs rising from zero to the point of local circulations, and then ceasing to increase. Line C shows that the costs would be the same no matter how many units of service are provided.

Generally, a cost/service relationship will look more like line D: costs rise rapidly for the first units of service and then begin to level off some. The total expense continues to rise as the units of service grows, but the cost per unit declines because of economies of scale.

This example does not include, of course, the costs of library construction or other major items of capital equipment (e.g., computer installations, basic reference collection acquisition etc.) but is limited to typical service operating costs and minor capital replacement (such as ongoing book acquisition and processing). Such major capital costs, if they were taken into account, could significantly alter the resulting per-unit service rates, and might also introduce certain thresholds and discontinuities into the picture, which our approach has assumed away. For example, the marginal cost of additional units of circulation might be much higher than projected here if they just exceeded the capacity an existing system, and would require additional new construction (to house a larger collection of holdings, for example) or major investments to expand computer processing facilities.

The Milwaukee Public Library was the only respondent to provide complete local use only budget data; their figures bear out our assumption that per unit costs should decline as the number of units rises. (This relationship may not persist forever; when organizations grow very large, their per unit costs may begin to rise again.) The economies of scale should be greater for a large organization than for a medium organization, and greater for a medium organization than for a small one. Using Milwaukeee's budget data we calculated an average cost per unit of exported circulation, i.e., the average cost of the units provided to non-residents. We determined the average cost in the following manner:

Average cost per unit of exported circulation	=	Total costs for all circulation	-	Costs for local circulation	:	Units of exported circulation

For example, using Milwaukee's figures we determined an exported circulation rate of $0.69 per circulation:

$5,360,214* total circulation costs	-	4,912,417 local circulation costs	=	444,797 / 642,639 export costs # of circulations to non-residents	=	$0.69 per exported circulation

*Total circulation costs identified by MPL, overhead distributed proportionally between circulation and R & R, expenditures by MPL for System Services removed from budget.

Milwaukee's exported circulation rate is 43% of its overall average circulation rate.

Because the economies of scale realized by Milwaukee should be greater than those realized by smaller libraries, we assumed that export circulation rates would be 50% of total circulation rates for medium size libraries (Wauwatosa and West Allis) and 60% of total circulation rates for small libraries (all others). We reiterate that these are approximations based on not very much data. We believe, both intuitively and based on past experience looking at service delivery data and costs, that this may be a reasonable approximation of costs. However, new and perhaps more accurate estimates could be substituted in the analysis if they become available. We performed our analyses using the figures below.

TABLE 9:
Average Export Circulation Cost

Brown Deer	$0.59
Fox Point/Bayside	0.53
Franklin	0.64
Greendale	0.43
Hales Corners	0.47
Milwaukee	0.69
Oak Creek	0.62
Shorewood	0.36
Wauwatosa	0.32
West Allis	0.59
Whitefish Bay	0.34

Methods for Allocating Costs per Circulation

Having estimated average costs per unit of total circulation and per unit fo exported circulation, we simulated different ways of charging for circulation, given 1981 circulation patterns (shown in Table 7 above). In each of these simulations the borrowing community pays a fee to the lending community for each book (or other material) borrowed.

The simulations that follow are based on the three different pricing principles presented above: average cost, marginal cost, and substitution cost. Under each of these approaches, we tested several cost allocation methods:

(1) Flat rate - based on the highest supplier's or user's cost;
(2) Flat rate - based on the weighted average (by number of service units supplied or used) of all suppliers' or users' costs;
(3) Variable rates - based on the reported and computed costs of each supplier or user

Flat rates may be set somewhat arbitrarily, but are convenient and easy to administer. They assume that the value of each circulation unit is the same, regardless of who supplies and who consumes it. The variable rate supplier's costs assumes that each supplier should charge a rate sufficient to cover his own costs (average or marginal) of producing the service. It is one approximation to a market-like system, and like market systems, would probably lead to some significant adjustments in the pattern of service use, as consumers move from higher cost to lower cost suppliers of service.

The variable rate user's costs is also an approximation of a type of market. It is the closest approximation to each locality's substitution costs for the circulation units it purchases, and assumes that these costs are equivalent to what it would cost the locality to provide the service for itself. Accordingly, these allocations may also represent a type of "ceiling" for circulation service charges: if a locality's allocation under another approach is significantly higher than under this one, there would be a strong incentive to opt out of the system in one fashion or another, and "go it alone".

A. Circulation Charges Based on Average Cost for All Circulation

Table 10.A shows the effect of a flat rate charge using the highest average cost of any library in the system--in this case Milwaukee at $1.60 per circulation. This is the closest to the present system--all charges are based on Milwaukee Public Library's costs. Table 10 shows the locality in the far left column, and the transactions (in thousands) with all other localities in the next two columns. The rate per circulation (in this case, $1.60) is shown next, with the net effect of the transactions in the following column. These numbers represent dollars to be paid (negative numbers) to other communities or to be received (positive numbers) from other communities.

As in the current system, the system-member communities gaining significantly are Milwaukee, Wauwatosa, and West Allis. Those incurring high costs are Shorewood, Glendale and Greenfield.

Imposing a flat rate based on total average cost assumes that non-resident borrowers should help defray all costs of operating a library including overhead, administration, and on-going capital costs. (We do not deal with the initial capital costs of building a library here.) Such a system does not distinguish between resident circulation and non-resident circulations.

The flat rate method could be based on a charge other than the highest supplier's costs. In fact, using the highest supplier's cost does not encourage suppliers with high costs to reduce or even maintain those costs. Table 10.B shows the charges that would be incurred by each community under a flat rate system based on the weighted average of all

TABLE 10: CIRCULATION COST ALLOCATIONS - OVERALL AVERAGE COST

A: CIRCULATION COST ALLOCATION BY AVERAGE OVERALL COST/UNIT SUPPLIED--HIGHEST COST SUPPLIER

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	35.08	13.86	1.60		33963.20
FDBAY	16.74	37.86	1.60		-33792.00
GRNDL	6.99	17.94	1.60		-17521.60
HALCO	16.63	25.39	1.60		-14024.00
MILWK	629.95	231.71	1.60		637190.40
OAKCR	12.72	6.70	1.60		9632.00
SHOWD	5.40	104.82	1.60		-159068.80
WAUWT	115.16	51.42	1.60		101982.40
WALLI	95.68	36.20	1.60		95161.60
WHIBA	21.72	105.40	1.60		-133880.00
GLNDL	0.00	75.57	1.60		-120908.80
GRENF	0.00	115.27	1.60		-184428.80
RIVHL	0.00	6.50	1.60		-10401.60
STFRA	0.00	30.15	1.60		-48241.60
WMILW	0.00	8.66	1.60		-13848.00
CUDAH	1.57	8.94	1.60		-11795.20
FRANK	0.00	32.22	1.60		-51553.60
SMILW	0.36	1.85	1.60		-2380.80
ELMGR	0.18	39.97	1.60		-63672.00
BROOK	0.00	7.76	1.60		-12412.80
TOTAL	958.17	958.17			0.00

B: CIRCULATION COST ALLOCATION BY AVERAGE OVERALL COST/UNIT SUPPLIED--WEIGHTED AVERAGE

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	35.08	13.86	1.34		28401.73
FOBAY	16.74	37.86	1.34		-28258.56
GRNDL	6.99	17.94	1.34		-14652.44
HALCO	16.63	25.39	1.34		-11727.57
MILWK	629.95	231.71	1.34		532850.47
OAKCR	12.72	6.70	1.34		8054.76
SHOWD	5.40	104.82	1.34		-133021.28
WAUWT	115.16	51.42	1.34		85282.78
WALLI	95.68	36.20	1.34		79578.89
WHIBA	21.72	105.40	1.34		-111957.15
GLNDL	0.00	75.57	1.34		-101109.98
GRENF	0.00	115.27	1.34		-154228.58
RIVHL	0.00	6.50	1.34		-8698.34
STFRA	0.00	30.15	1.34		-40342.04
WMILW	0.00	8.66	1.34		-11580.39
CUDAH	1.57	8.94	1.34		-9863.74
FRANK	0.00	32.22	1.34		-43111.70
SMILW	0.36	1.85	1.34		-1990.94
ELMGR	0.18	39.97	1.34		-53245.71
BROOK	0.00	7.76	1.34		-10380.20
TOTAL	958.17	958.17			0.00

TABLE 10 CONTINUED

C: CIRCULATION COST ALLOCATION BY AVERAGE OVERALL COST/UNIT SUPPLIED--EACH SUPPLIER

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	35.00	13.86	0.71		3967.21
FOBAY	16.74	37.86	0.89		-36170.73
GRNDL	6.99	17.94	0.71		-21963.66
HALCO	16.63	25.39	0.79		-26122.98
MILWK	629.95	231.71	1.60		815942.26
OAKCR	12.72	6.70	1.04		3392.77
SHOWD	5.40	104.82	0.60		-160239.94
WAUWT	115.16	51.42	0.62		-6963.16
WALLI	95.68	36.20	1.18		61651.11
WHIBA	21.72	105.40	0.56		-152580.71
GLNDL	0.00	75.57	1.34		-103014.17
GRENF	0.00	115.27	1.34		-168532.60
RIVHL	0.00	6.50	1.34		-7564.52
STFRA	0.00	30.15	1.34		-47962.71
WMILW	0.00	8.66	1.34		-11809.00
CUDAH	1.57	8.94	1.34		-12089.67
FRANK	0.00	32.22	1.34		-51405.78
SMILW	0.36	1.85	1.34		-2474.15
ELMGR	0.18	39.97	1.34		-63693.76
BROOK	0.00	7.76	1.34		-12365.80
TOTAL	958.17	958.17			0.00

TABLE 10 CONTINUED

communities' average total cost. (The average is weighted according to the proportion of circulations supplied by each community.) The weighted average is $1.348 per circulation. The winners and losers under this system are the same as in 10.A, but the magnitude of the debits and credits is reduced. This type of system still assumes that non-residents circulations should be treated like resident circulations, but that the charge should be based on all member communities costs rather than just the highest cost community.

Table 10.C simulates charges that would be incurred if each supplying community charges the amount it costs to supply the service. Thus, in the table, all communities borrowing from Brown Deer pay $0.98 per circulation, those borrowing from Milwaukee pay $1.60, etc. For those communities not supplying budget data, we inserted the weighted average cost. Although intuitively it seems fair for a community to recover its costs, this sytem would encourage a library to increase costs, or, at the very best, would provide no incentive to reduce costs. In fact, in the short run, this system penalizes communities whose costs are low.

Note the charges in this column: Milwaukee's gain sky-rockets--it is charging just as much for its services as before, but is paying less for other communities' services.

Although Wauwatosa is a significant exporter of circulation it ends up paying out because its per circulation costs are low. Communities like Shorewood and Whitefish Bay, with fairly low costs and extensive import circulation--i.e., their residents borrow from other libraries--really lose and have great incentive not to belong to the system. However, in the long run there is no doubt that, if this schedule of rates were to persist, users of circulation services would make every effort to adjust their patterns of demand--e.g., Shorewood would obtain its "resident" collection from Wauwatosa's library at $0.63 per circulation, rather than from MPL at $1.60--and prices would certainly also be adjusted to in response. Accordingly, the allocations in this Table only represent a static cross-section of a 1981 "point-of-departure", rather than the ultimate picture of where such a system might end up.

B. Circulation Charges Based on Average Cost for Exported Circulation

If you assume that the primary purpose of any library is to serve residents, you might institute a non-resident borrowing fee based on the marginal cost of providing the service to non-residents, i.e., only the extra cost incurred by expanding service from resident-only borrowing to resident and non-resident borrowing. This is what our average exported circulation cost (shown in Table 9 above) represents.

We repeated the simulations performed above substituting the average export cost for the average total cost.

TABLE 11: CIRCULATION COST ALLOCATIONS - AVERAGE "EXPORT" COST

A: CIRCULATION COST ALLOCATION BY EXPORT COST/UNIT SUPPLIED--HIGHEST COST SUPPLIER

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	35.00	13.86	0.69		14646.63
FOBAY	16.74	37.86	0.69		-14572.80
GRNDL	6.99	17.94	0.69		-7556.19
HALCO	16.63	25.39	0.69		-6047.85
MILWK	629.95	231.71	0.69		274788.36
OAKCR	12.72	6.70	0.69		4153.80
SHOWD	5.40	104.82	0.69		-68598.42
WAUWT	115.16	51.42	0.69		43979.91
WALLI	95.68	36.20	0.69		41038.44
WHIBA	21.72	105.40	0.69		-57735.75
GLNDL	0.00	75.57	0.69		-52141.92
GRENF	0.00	115.27	0.69		-79534.92
RIVHL	0.00	6.50	0.69		-4485.69
STFRA	0.00	30.15	0.69		-20804.19
WMILW	0.00	8.66	0.69		-5971.95
CUDAH	1.57	8.94	0.69		-5086.68
FRANK	0.00	32.22	0.69		-22232.49
SMILW	0.36	1.85	0.69		-1026.72
ELMGR	0.18	39.97	0.69		-27458.55
BROOK	0.00	7.76	0.69		-5353.02
TOTAL	958.17	958.17			0.00

B: CIRCULATION COST ALLOCATION BY EXPORT COST/UNIT SUPPLIED--WEIGHTED AVERAGE

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	35.00	13.86	0.61		12842.34
FDBAY	16.74	37.86	0.61		-12777.60
BRNDL	6.99	17.94	0.61		-6625.36
HALCD	16.63	25.39	0.61		-5302.83
MILWK	629.95	231.71	0.61		240937.62
JAKCR	12.72	6.70	0.61		3642.10
SHOWD	5.40	184.82	0.61		-60147.89
WAUWT	115.16	51.42	0.61		38562.10
WALLI	95.68	36.20	0.61		35982.98
WHIBA	21.72	185.40	0.61		-50623.38
GLNDL	0.00	75.57	0.61		-45718.64
GRENF	0.00	115.27	0.61		-69737.14
RIVHL	0.00	6.50	0.61		-3933.11
STFRA	0.00	30.15	0.61		-18241.36
WMILW	0.00	8.66	0.61		-5236.28
CUDAH	1.57	8.94	0.61		-4460.06
FRANK	0.00	32.22	0.61		-19493.71
SMILW	0.36	1.85	0.61		-900.24
ELMGR	0.18	39.97	0.61		-24075.98
BROOK	0.00	7.76	0.61		-4693.59
TOTAL	958.17	958.17			0.00

TABLE 11 CONTINUED

C: CIRCULATION COST ALLOCATION BY EXPORT COST/UNIT SUPPLIED--EACH SUPPLIER

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	35.00	13.86	0.59		5900.35
FOBAY	16.74	37.86	0.50		-14106.10
GRNDL	6.99	17.94	0.43		-8897.05
HALCO	16.63	25.39	0.47		-9297.95
MILWK	629.95	231.71	0.69		334699.24
OAKCR	12.72	6.70	0.62		3544.58
SHOWD	5.40	104.82	0.36		-69050.91
WAUWT	115.16	51.42	0.32		1158.57
WALLI	95.68	36.20	0.59		33743.76
WHIBA	21.72	105.40	0.34		-64228.47
GLNDL	0.00	75.57	0.61		-46818.71
GRENF	0.00	115.27	0.61		-75539.97
RIVHL	0.00	6.50	0.61		-3696.25
STFRA	0.00	30.15	0.61		-20736.44
WMILW	0.00	8.66	0.61		-5450.69
CUDAH	1.57	8.94	0.61		-5176.14
FRANK	0.00	32.22	0.61		-22190.73
SMILW	0.36	1.85	0.61		-1056.78
ELMGR	0.18	39.97	0.61		-27464.22
BROOK	0.00	7.76	0.61		-5336.09
TOTAL	958.17	958.17			0.00

TABLE 11 CONTINUED

Table 11.A is based on the highest cost supplier--again Milwaukee at $0.69 per circulation. The winners and losers are the same as in 10.A but the magnitude of the debits and credits is greatly reduced.

The range of debits and credits is further compressed by imposing a charge equal to the weighted average of export costs--$0.612 per circulation--in Table 11.B. The weighted average melds together all communities' expenses, assuming that there may be good reason for the differences but providing some incentive for expensive comnmunities to reduce their costs.

Table 11-C shows debits and credits resulting from each community charging to recover its costs. Again, where budget information was unavailable, we substituted the weighted average cost. Of all the charging systems simulated here, this may be the closest to a market system--each community charges its marginal cost. Whether the market would bear these costs could only be determined by instituting such a system. Like the system depicted in 10.C, high cost exporters are rewarded, while low cost importers are penalized. Milwaukee is still the biggest winner in this system, but using export cost instead of total cost reduces the size of the credit. Because the charges are lower, Wauwatosa returns to a position of net credit, although it is small considering the number of circulations provided to other communities. However, the same remarks regarding short-term vs. long term trends which we made under 10.C also hold true here.

C. Circulation Charges Based on Average Substitution Cost for All Circulation

Here we consider charges based on a community's cost of replacing the service provided to them by another community. These allocation methods assume that a community pays a charge based on its own costs (rather than collecting a charge based on its own costs). This system assumes that a borrower should pay no more than it would cost to provide the service at home. We can apply the substitution charges in the same manner as in A and B. Here we apply the average total circulation costs--charges similar to those used in A except the charges appear in the rate/unit received column rather than in the rate/unit supplied column. The rates are also multiplied by the units received rather than by the units supplied.

A flat rate charge based on the highest cost rate ($1.60, as in 10.A) would result in exactly the same credits and debits as in 10.A. Thus, we omit a Table labelled 12.A--it would be exactly like 10.A except the rate/unit would appear one column to the right. There is a theoretical difference in whether you are charging supply costs or replacement costs, but with a flat rate based on the highest cost rate, the results do not change.

Table 12.B shows charges occuring if the cost per circulation is based on the weighted average of all communities' costs. Note that the weighted average here--$1.034 per circulation--is different from that in 10.B ($1.348). The rate used in 12.B is weighted in proportion to units

received, whereas the rate in 10.B was weighted according to units supplied. The rate is lower because the communities receiving a high level of reciprocal circulation (e.g., Shorewood, Whitefish Bay) have lower average costs than those supplying the service (e.g., Milwaukee). Note that the true replacement cost for those communities that do not have libraries would be much higher than indicated here. These rates are based on budgets of existing libraries--operating and on-going capital costs--and do not include the capital cost of buying or building a library and a materials collections. The communities with net credits are the same as in 10.B but because the rate is lower the range between the greatest credit and the greatest debit is smaller.

Table 12.C simulates charges that would occur if each community paid its replacement cost for each unit recieved. Similar to 10.C in that a variable rate is used, here Brown Deer pays $0.98 per circulation for each unit recieved, rather than charging $0.98 for each unit supplied. We have again inserted the weighted average for those communities for which we do not have budget information (including those without libraries). Note again that communities without libraries would have a greater substitution cost than that indicated. This system rewards low costs; Milwaukee's net credit is lower than in any other simulations so far because it is paying the highest rate for its borrowing, a rate that is higher than the ones it collects from other communities. Communities whose costs are low, pay low rates and perhaps, collect higher rates. Because this system encourages low costs, it may discourage a high level of service or provision of auxilliary services (such as a delivery system) that drives up costs.

D. Circulation Charges Based on Average Substitution Cost for Exported Circulation

This simulation is like that performed in B in that it uses the marginal cost or export cost but, as in C, each community's charge is applied to the units received, representing the cost of replacing the service at their own library.

A flat rate based on the highest rate would duplicate 11.A. As before, there is a theoretical difference whether you charge for supplying or receiving, but no actual difference. We thus omit Table 13.A.

Table 13.B simulates charges based on a weighted average of rates. Again, the weighed average is lower than its counterpart in 11.B because the rate is weighted in proportion to units received and big receivers, by and large, have lower costs than big suppliers.

13.C applies each receiver's export cost to units received. Like 12.C, this system rewards low costs, but may encourage low services. Here, the magnitude of credits and debits is reduced because the export rates (or marginal rates) are lower than those based on total circulation. Note that Milwaukee's gains and Shorewood and Whitefish Bay's losses are lower

TABLE 12: CIRCULATION COST ALLOCATIONS - OVERALL SUBSTITUTION COST

B: CIRCULATION COST ALLOCATION BY ESTIMATED SUBSTITUTION: OVERALL COST/UNIT RECEIVED--WEIGHTED AVERAGE

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	35.08	17.86		1.03	21863.81
FOSAY	16.74	37.86		1.03	-21753.60
GRNDL	6.99	17.94		1.03	-11279.53
HALCO	16.63	25.39		1.03	-9027.95
MILWK	629.95	231.71		1.03	410191.32
OAKCR	12.72	6.70		1.03	6200.60
SHOWD	5.40	104.82		1.03	-102400.54
WAUWT	115.16	51.42		1.03	65651.17
WALLI	95.68	36.20		1.03	61260.28
WHIBA	21.72	105.40		1.03	-86185.25
GLNDL	0.00	75.57		1.03	-77835.04
GRENF	0.00	115.27		1.03	-118726.04
RIVHL	0.00	6.50		1.03	-6696.03
STFRA	0.00	30.15		1.03	-31055.53
WMILW	0.00	8.66		1.03	-8914.65
CUDAH	1.57	8.94		1.03	-7593.16
FRANK	0.00	32.22		1.03	-33187.63
SMILW	0.36	1.85		1.03	-1532.64
ELMGR	0.18	39.97		1.03	-40988.85
BROOK	0.00	7.76		1.03	-7990.74
TOTAL	958.17	958.17			0.00

C: CIRCULATION COST ALLOCATION BY ESTIMATED SUBSTITUTION OVERALL COST/UNIT RECEIVED--EACH RECEIVER

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	35.00	13.86		0.71	41391.85
FOBAY	16.74	37.86		0.89	-16037.30
GRNDL	6.99	17.94		0.71	-2928.54
HALCO	16.63	25.39		0.79	-1404.64
MILWK	629.95	231.71		1.60	119743.04
OAKCR	12.72	6.70		1.04	9820.29
SHOWD	5.40	104.82		0.60	-55603.35
WAUWT	115.16	51.42		0.62	146462.50
WALLI	95.68	36.20		1.19	92375.50
WHIBA	21.72	105.40		0.56	-36895.32
GLNDL	0.00	75.57		1.03	-77872.61
GRENF	0.00	115.27		1.03	-118783.35
RIVHL	0.00	6.50		1.03	-6699.26
STFRA	0.00	30.15		1.03	-31070.52
WMILW	0.00	8.66		1.03	-8918.95
DUDAH	1.57	8.94		1.03	-6702.71
FRANK	0.00	32.22		1.03	-33203.65
SMILW	0.36	1.85		1.03	-1327.79
ELMGR	0.18	39.97		1.03	-4350.58
BROOK	0.00	7.76		1.03	-7994.60
TOTAL	958.17	958.17			0.00

TABLE 12 CONTINUED

TABLE 13: CIRCULATION COST ALLOCATIONS - "EXPORT" SUBSTITUTION COST

B: CIRCULATION COST ALLOCATION BY ESTIMATED SUBSTITUTION: EXPORT COST/UNIT RECEIVED--WEIGHTED AVERAGE

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	35.00	13.86		0.51	10783.32
FOBAY	16.74	37.86		0.51	-10728.96
GRNDL	6.99	17.94		0.51	-5563.11
HALCO	16.63	25.39		0.51	-4452.62
MILWK	629.95	231.71		0.51	202307.95
OAKCR	12.72	6.70		0.51	3058.16
SHOWD	5.40	104.82		0.51	-50504.34
WAUWT	115.16	51.42		0.51	32379.41
WALLI	95.68	36.20		0.51	30213.81
WHIBA	21.72	105.40		0.51	-42506.90
GLNDL	0.00	75.57		0.51	-38388.54
GRENF	0.00	115.27		0.51	-58556.14
RIVHL	0.00	6.50		0.51	-3302.51
STFRA	0.00	30.15		0.51	-15316.71
WMILW	0.00	8.66		0.51	-4396.74
CUDAH	1.57	8.94		0.51	-3744.98
FRANK	0.00	32.22		0.51	-16368.27
SMILW	0.36	1.85		0.51	-755.90
ELMGR	0.18	39.97		0.51	-20215.86
BROOK	0.00	7.76		0.51	-3941.06
TOTAL	958.17	958.17			0.00

C: CIRCULATION COST ALLOCATION BY ESTIMATED SUBSTITUTION EXPORT
COST/UNIT RECEIVED--EACH RECEIVER

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	35.00	13.86		0.43	16735.45
FORAY	16.74	37.86		0.53	-11479.58
GRNDL	6.99	17.94		0.43	-3268.83
HALCO	16.63	25.39		0.47	-2943.04
MILWK	629.95	231.71		0.69	104720.11
OAKCR	12.72	6.70		0.62	3477.88
SHOWO	5.40	104.82		0.36	-34447.42
WAUWT	115.16	51.42		0.31	61858.61
WALLI	95.68	36.20		0.59	38637.73
WHIBA	21.72	105.40		0.34	-24413.51
GLNDL	0.00	75.57		0.51	-38373.93
GRENF	0.00	115.27		0.51	-58533.85
RIVHL	0.00	6.50		0.51	-3301.25
STFRA	0.00	30.15		0.51	-15310.88
WMILW	0.00	8.66		0.51	-4395.07
CUDAH	1.57	8.94		0.51	-3457.51
FRANK	0.00	32.22		0.51	-16362.04
SMILW	0.36	1.85		0.51	-689.84
ELMGR	0.18	39.97		0.51	-4513.47
BROOK	0.00	7.76		0.51	-3939.56
TOTAL	958.17	958.17			0.00

TABLE 13 CONTINUED

than for other methods. As noted earlier, the allocations in this Table, at least for those localities with their own libraries, who are not faced with the capital component of substitution costs, may represent a kind of "ceiling" for circulation charges. When a locality such as Whitefish Bay could supply the same circulation services for itself for under $25,000 it becomes readily apparent why charges at the current level of $95,000 begin to raise questions regarding the utility of participating in the system.

E. Other Ways of Allocating Circulation Charges

In A-D above we allocated circulation charges based on various estimates of cost, and the distribution of actual usage. Of course, "cost-of-use" is not the only way costs can be allocated. In the pre-1982 R&R payment, for example, the costs of the service were actually allocated among communities on the basis of their assessed property values, and not in any proportion to the use their residents made of this service. In this section we will simulate the results of allocating the estimated costs of book circulation by two other methods.

The first method is similar to the one used for R&R: it allocates the estimated costs of circulation services* among member localities in proportion to their total assessed property values (see Table 14 below). Communities are assessed their shares of the total costs -- shown in Table 14 under "Assessed to Locality" -- to be paid into a pool making up the total costs of reciprocal circulation provided. Each locality supplying non-resident circulation units receives from that "pool" the cost of the units it has provided -- shown in Table 14 in the next-to-last column. The final column shows each locality's net balance. Milwaukee, naturally, as the largest supplyer by far, has the largest credit, followed by the other supplying localities.

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* Taken from Table 10A; these costs could be estimated in any of the ways described in A-D above: their relative distribution among localities would stay the same, but their absolute magnitudes would simply vary pro-rate to the total estimated costs.

This approach is premised on the "public goods" rationale, likening interlibrary circulation to sewage disposal or education, where taxpayers (through their local communites, in this case) pay in proportion to the assessed value of their property, and service providers are reimbursed their costs. To users, the service is provided "free", unrelated, that is, to the actual costs or amounts of use. As an allocation index, total assessed property value has two merits: it takes into account differences in size of communities, and includes some reflection of the relative wealth of their residents.

The second approach, shown in Table 15 below, uses a weighted cost of use index. Two basic per unit costs are used, taken from Tables 12C, and 13C. These costs are modified for each community, by "weighting" them by an "index of assessed value", which reflects that community's deviation for the average per capita assessed property value for all participating municipalities, indexed as 1. The "rate per unit received" in Table 15 shows the resulting adjusted rate each community pays, reflecting differences in relative wealth or "need". These rates range from a low of 34¢ per book for Greenfield to a high of $3.81 for Elm Grove (based on the average cost per book to $1.03 from 12C), or a low of 17¢ to a high of $1.88 (based on the per unit cost of 51¢ from 13C). This approach illustrates how a formula might work which attempts to take into account both the distribution of service between communities, and their relative wealth or "needs".

Summary Analysis

In comparing all the allocations developed above, these conclusions stand out:

1) No factor affects the sum allocated to each community as much as the absolute magnitude of the estimated cost of the service. It is clear, therefore, that in negotiating a rate or allocation formula, the questions of how the costs are to be estimated (average or "export") and what cost elements are to be included and allocated to that service, are critical.

2) The distribution of costs between localities is significantly changed by basic differences in allocation approaches, i.e. whether cost are allocated by supply and use, or by another approach such as the "tax-like" method shown in Table 14 or the "need-use" approach of Table 15.

3) Under the "supply-and-use" approaches shown in Tables 10-13, the other critical variable is the actual distribution of units - i.e. each locality's net balance of units supplied or consumed. Together with the absolute total costs, this accounts for most of the variance in allocations, and all the other differences between these allocations are relatively marginal.

TABLE 14: CIRCULATION COST ALLOCATIONS - BY ASSESSED PROPERTY VALUE

EX: CIRCULATION COST ALLOCATION BY
ASSESSED PROPERTY VALUE

LOCALITY	POPULATION IN 1980	ASSESSED PROPERTY VALUE	ASSESSED TO LOCALITY	PAYMENT TO LOCALITY	NET CREDIT OR DEBIT
BROAD	12921	327829795	41209	56133	14924
FORAY	12261	190615550	23961	26781	2820
GRNDL	10928	86640380	10891	11176	285
HALCO	7110	201703870	25354	26606	1252
MILWK	636210	7684069350	965897	1007922	42025
OAKCP	10932	512972720	64481	20355	-44126
SHOWC	14327	261648936	32898	8637	-24253
WHOWT	51703	699020192	87868	184257	96385
WALLI	60928	445835289	56042	153085	97043
WHIBA	14930	205648405	25850	34752	8902
GLNDL	13882	155040892	19489	0	-19489
BRENF	11467	126928289	15955	0	-15955
RIVHL	1642	57493267	7228	0	-7228
SIERR	10060	55242606	6944	0	-6944
WMILW	3535	40614037	5105	0	-5105
CUDAH	19547	139080896	17487	2512	-14971
FRANK	16871	106121523	13340	0	-13340
SMILW	21069	305702569	38452	578	-37875
ELMBR	6735	305108164	38352	286	-38066
BROOK	37921	288662932	36285	0	-36285
TOTAL	1007590	12196185922	1533075	1533075	0

TOTAL COST IN THE SYSTEM IS: 1533075

TOTAL BOOKS IN THE SYSTEM IS: 958

COST/BOOK IS: 1.60

TABLE 15: CIRCULATION COST ALLOCATIONS - BY "WEIGHTED" USE

1. CIRCULATION COST ALLOCATION BY ASSESSED PROPERTY VALUE PER CAPITA INDEX X UNITS APPLIED TO OVERALL SUBSTITUTION COST (CC)

LOCALITY	POPULATION IN 1968	ASSESSED PROPERTY VALUE	ASSESSED VALUE PER CAPITA	INDEX OF ASSESSED VALUE	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	SUBSTITUTION EXPORT RATE PER THOUSAND	CORRECTED RATE PER THOUSAND	NET
BROWD	1092[illegible]	227829795	25072	1.60	35.98	10.98	1646	2128	6885
ADAM	12261	190615550	15546	0.98	16.74	37.86	1009	1308	-22107
BRNCL	1[illegible]928	56648380	5116	0.32	6.99	17.94	332	431	-28
HALCO	7118	201703030	26369	1.79	16.63	25.39	1841	2388	-40895
MILWK	63[illegible]218	7[illegible]8406[illegible]350	12078	0.76	629.95	231.71	784	1016	297124
OAKCR	16932	312972720	18296	1.91	12.72	6.78	1960	2550	-4950
BROWD	14327	2[illegible]6[illegible]48936	18263	1.15	5.47	104.82	1185	1537	119850
WHLNT	5[illegible]06	6[illegible]9020[illegible]92	13624	0.86	115.16	51.42	884	1147	44688
WALLT	62926	445835289	6974	0.44	95.68	36.20	453	587	56189
WHITE	14930	205648405	13774	0.87	21.72	105.40	894	1159	-73812
BUNDL	10882	155840892	11168	0.70	0.00	75.57	725	940	-54763
BRENF	31467	126926289	4034	0.25	0.00	115.27	262	339	-30172
RIVHL	1642	57499267	35018	2.21	0.00	6.50	2272	2947	-14773
STFRA	10066	68242605	5489	0.35	0.00	30.15	356	462	-10738
WHILW	3535	40614337	11489	0.72	0.00	8.66	745	967	-6453
DURAH	17547	139880896	7115	0.45	1.57	8.94	462	599	-1898
THENK	15871	10[illegible]121522	6293	0.40	0.00	32.22	408	529	-13182
BMILW	21069	385902569	14519	0.91	0.36	1.85	942	1222	-1459
ELMGR	6775	305188164	45302	2.85	0.18	39.97	2940	3813	-4497
BROOK	37921	26866[illegible]932	7[illegible]2	0.48	0.00	7.76	494	641	-3832
TOTAL	1[illegible]9609	12[illegible]96185922	317450		959.17	958.17			0

SUBSTITUTION EXPORT TOTAL COST:	986917
COST/BOOK:	1.03
TOTAL NUMBER OF BOOKS:	958172
CORRECTION FACTOR WAS:	1.30

[illegible] CIRCULATION COST ALLOCATION BY ASSESSED PROPERTY VALUE PER CAPITA
INDEX UNITS APPLIED TO EXPORT SUBSTITUTION COST (D2)

[illegible]	POPULATION IN 1980	ASSESSED PROPERTY VALUE	ASSESSED VALUE PER CAPITA	INDEX OF ASSESED VALUE	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	SUBSTITION EXPORT RATE PER THOUSAND	CORRECTED RATE PER THOUSAND	NET
BROWN	12921	327829795	25372	1.60	35.89	13.86	815	1051	38.3
POSEY	12261	196615550	15546	0.98	16.74	37.26	500	644	-1[illegible]61
SPNDL	16928	366480389	5118	0.32	6.99	17.94	164	212	-18
[illegible]ALCO	71[illegible]	20[illegible]03803	28[illegible]9	1.79	16.63	25.39	912	1175	-20002
[illegible]TLAN	[illegible]6216	768[illegible]869350	12873	0.76	529.95	231.71	386	500	149464
[illegible]HIP	16932	512972720	30296	1.91	12.72	6.70	970	1250	-1[illegible]6
[illegible]ICHE	14327	2616[illegible]8706	18267	1.15	5.40	184.82	587	756	-59[illegible]42
[illegible]	51[illegible]	[illegible]4962819.	10[illegible]24	0.66	115.15	31.42	479	564	12[illegible]89
[illegible]HALL	67[illegible]28	4468[illegible]5299	6974	0.44	95.60	36.20	224	289	27[illegible]82
[illegible]WISH	14930	205848405	13774	0.87	21.72	[illegible]05.40	442	570	-[illegible]6548
SUNDL	17382	1550[illegible]4972	11168	0.70	0.00	75.57	359	[illegible]67	-27[illegible]18
[illegible]REVE	71[illegible]67	126[illegible]28189	4874	0.25	0.00	115.27	130	167	-14[illegible]79
[illegible]ANKL	1642	57[illegible]992a7	35[illegible]8	2.21	0.00	6.50	[illegible]125	1452	-[illegible]7[illegible]2
[illegible]TPA	10[illegible]6	[illegible]5242[illegible]6	5484	0.35	0.00	30.15	176	227	-[illegible]547
[illegible]WILA	[illegible]535	48[illegible]14[illegible]7	11489	0.72	[illegible].00	[illegible].[illegible]6	769	47[illegible]	-[illegible]19[illegible]
[illegible]ICHM	17547	17[illegible]280[illegible]96	7[illegible]15	0.45	1.57	[illegible].94	229	295	-1435
[illegible]HAIR	[illegible]6271	[illegible]8[illegible]1[illegible]920	[illegible].93	[illegible].40	0.00	[illegible]1.22	202	[illegible]6[illegible]	-[illegible]6512
[illegible]ILLA	[illegible]1[illegible]69	[illegible]2859[illegible]5[illegible]69	.[illegible]5[illegible]5	[illegible].5.	[illegible].26	1.85	467	[illegible]60	-722
[illegible]LMER	[illegible]705	[illegible]2[illegible]1[illegible]3[illegible]16[illegible]	45302	2.85	[illegible].18	[illegible]9.97	1456	1876	-4566
[illegible]HOOP	[illegible]7921	28[illegible]6[illegible]2972	7612	[illegible].48	[illegible].00	7.76	.45	[illegible]15	-1[illegible]93
TOTAL	[illegible]1[illegible]7[illegible]4	[illegible]219[illegible]185922	[illegible]17458		958.17	958.17			0

SUBSTITUTION EXPORT TOTAL COST: 488667

COST/000K: 0.51

TOTAL NUMBER OF 000'S: 958172

CORRECTION FACTOR WAS: 1.29

TABLE 15 CONTINUED

In negotiating an acceptable rate for interlibrary circulation, therefore, the MCFLS and its member localities will have to make two decisions; first: the basis for estimating the total cost of the service, and the basic allocation principle for distributing these costs among participating localities. The above tables clearly show that the interests of different communities will be different, depending on whether they are rich or poor, suppliers or consumers, and more efficient or less efficient in delivering this service. No single approach clearly benefits all, and any ultimate decision will have to be arrived at through negotiation and compromise.

SYSTEM PROVIDED SERVICES:

The Milwaukee County Federated Library System currently provides Over-60 and Multi-Media services to system members at no direct cost. The services are supprted with system revenues received from the State of Wisconsin. There are, however, oportunity costs associated with this approach. By using system funds to support these services, the system's members forgo the opportunity to use that money for another purpose. These services could be paid for through circulation charges, like book circulation. In fact, because they operated separately, the average cost for these services is easier to compute than for other circulation, which is tied up in line budgets with research and reference and other services. We computed average costs for Over-60 ($1.91) and Multi-Media ($4.14) by dividing each service's 1981 budget by the number of 1981 circulations. The Multi-Media costs are high, at least in part, because it is a labor intensive service. We note here that these are average costs and that multi-media encompasses several services--16mm films, video cassettes, etc. The cost for each service may vary up or down from the average. Tables 16 and 17 show the charges each community would pay if the system charged per circulation for Over-60 and/or Multi-Media service.

It is worth noting that Milwaukee is by far the largest user of these services, amounting to 74.6% of total volume. The next largest user is West Allis, with only 6.7% of total volume. This illustrates the nature of this service: a whale with many minnows, and raises some serious questions. What is the utility of the MCFLS maintaining and operating this service, and funding it entirely with State money? This issue should be addressed in the context of the cost allocations for the System's services as a whole, and with due consideration for the alternative options of allocating State aids within the System and among the services provided by the MCFLS and its members.

TABLE 16: OVER-60 COST ALLOCATIONS

Locality	Units of Service	Cost= Circ x 1.91
Milwaukee	94115	179,759.65
Shorewood	1985	3,791.35
Wauwatosa	6665	12,730.15
West Allis	8431	16,103.21
Greenfield	4915	9,387.65
Oak Creek	1406	2,685.46
Fox Bay	935	1,785.85
Greendale	1716	3,277.56
Glendale	5467	10,441.97
Hales Corners	357	681.87
Brown Deer	164	313.24
	126,156	

TABLE 17: MULTI-MEDIA CIRCULATION

a) $4.14 rate per unit (1981)

Locality	Units of Service	Cost
Milwaukee	26176	108,368.64
Greendale	730	3,022.20
Hales Corners	656	2,715.84
Oak Creek	1236	5,117.04
West Allis	2405	9,956.70
Shorewood	1757	7,273.98
Whitefish Bay	1134	4,694.76
Fox Bay	1148	4,752.72
Wauwatosa	2291	9,484.74
	37,533	

RESEARCH AND REFERENCE:

Milwaukee County's failure to fund the suburban use of MPL's research and reference service and the subsequent curtailment of that service was a prime impetus for the current reexamination of the MCFLS. Although we believe there are other difficulties latent in current system operations that could as easily have caused the dysfunction, we recognize the importance of addressing the research and reference breakdown.

The formula used until 1981 to compute Milwaukee County's payment to the Milwaukee Public Library for research and reference service was based on an average cost principle: all of Milwaukee Public Library's costs (operating and capital, direct and indirect) were allocated among services. The research and reference (R & R) formula allocated very substantial capital and overhead (e.g., grounds maintenance) costs to that service. The resulting 1981 payment of $1,102,101 represents a payment of $2.36 per reference question, based on MPL quarterly surveys.

Today the R & R formula is history: it is unlikely that Milwaukee County will ever resume payment for suburuban R & R services, and if they are to be reinstated, a new basis for cost computation and funding will have to be established. This has already occurred in part, with MPL's resumption of walk-in R & R service for suburban residents in late 1982, reimbursed by the MCFLS with a State funded payment of $83,000 in 1982 and $165,000 in 1983. These payments were computed on the basis of the County's 1981 payment, and represent the pro-rata share of suburban walk-in R & R services. However, the absolute difference between the magnitude of these payments and the last County payment is noteworthy. It can be explained in part by the fact that Milwaukee makes up nearly 70% of the county's tax base; consequently, the same percentage of the 1981 County payment is actually Milwaukee paying Milwaukee!

It is pointless to go back to analyze the formula in detail, not only because it is moot today, but also because no rational explanation of the original cost assignments can be obtained. Accordingly, the System and its members will essentially be starting over to develop a basis for negotiating the estimated costs of the R & R services delivered by the MPL*, and to find a source of funding these costs or a way of allocating them among the members of the System. There are three possible ways of allocating and funding R & R costs:

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* We are adopting the assumption which has prevailed in the MCFLS hitherto, that the MPL is the only supplier of non-resident R & R services. Though some of the other "central" libraries, such as Wauwatosa and West Allis, also provide such services, we have no information on their magnitude. The computations that follow are based on 1981-82 data, but if data on "exported" R & R services by other libraries were available, the same allocation systems could be extended to a "multiple supplier model" just as it was for Reciprocal Circulation.

(1) Assessment or Levy

A tax-like approach assumes that R & R is a public service, to be supported by local governments from their general funds. Accordingly, the estimated costs of this service are assessed to each of the participating localities in proportion to its assessed property value. This is the same principle, in fact, on which the County funded R & R services, collecting directly (through the County levy) from the area's taxpayers. In the future, the County could assess a special levy on municipalities, as it does today for the County book Contract. Or, if the County's role in the System were reduced or eliminated, the System could levy this charge directly, perhaps together with any similar charges for other services such as Multi-Media or Over-60. The magnitude of sums involved will depend, of course, on how the costs of "exported" R & R services are estimated, and the same issues of overall average cost per unit vs. marginal cost per exported unit will arise that were discussed under Circulation above.

(2) Cost-of-Use

This system would be similar to the approach used for Reciprocal Circulation today. Estimates of the distribution of service usage between the various localities in the System could be obtained by a periodic survey, just as they were up to 1982. The total estimated costs to MPL of providing non-resident R & R services could be assigned between the suburban localities pro-rata to their residents' respective use. In the simulations that follow, Tables 18B, 19B and 20B illustrate this approach.

(3) Free Service

Under this approach, the System funds the provision of R & R services from its own budget. This, of course, leaves open the question of what the source of the System's funds will be. For the services which the System funds in this manner today--Multi-Media Circulation and Over-60--the source is State aid. If State aid were used to support R & R services, a reallocation of these funds from their present purposes would be required, unless State aid were substantially increased, an unlikely prospect.

Cost Allocations

We have simulated a set of illustrative cost allocations for MPL supplied R & R services, with volume and distribution of use based on 1981-82 survey data. These simulations explore cost allocations under three different estimates of R & R costs:

A. Estimated Average Overall Cost (1981):

The overall average cost (in 1981) per R & R request processed was estimated using the 1981 County payment as a point of departure. This was done by inserting the relevant usage proportions and assessed property value proportions in the formula, and solving for the 1981 estimated R & R cost. This cost estimate represents an overall average per unit cost which includes a portion of overhead and capital costs which, arguably, might not be assigned to R & R services. Table 18A allocates these costs among localities by their relative assessed property values--i.e., it shows the outcomes of a tax-like allocation. Note that the net payment to MPL is now only $373,000; this results from the fact that the original County payment of $1.2 million is reduced by the sum actually assessed against the City of Milwaukee as its share of the County levy. The largest suburbs (Oak Creek, Wauwatosa and West Allis) naturally have the highest debits, but payments are not directly proportionate to size, since per capita assesessed values vary.
Tables 18B and 18C show "Cost-of-Use" allocations. The first allocates the cost pro-rata to use (i.e., on a straight cost/unit basis). Note the cost per unit of service of $2.36, which is the overall average for all units of R & R services delivered. Milwaukee is again the only credit because it is the sole supplier, but its payment is somewhat smaller than under 18A above because its share of R & R use is greater than its proportion of total assessed property value in the County. The distribution of costs is somewhat different than in 18A, with most communities paying somewhat less, a few substantially less, and only Whitefish Bay more--about $25,000 instead of $19,000 before. Most communities benefit from this allocation because Milwaukee's net credit is lower.

In Table 18C, distribution is by "weighted" use, with per-capita assessed value* serving as an index of "need", Milwaukee's revenue is slightly higher than 18B above, but still less than under 18A. Here the North Shore suburbs pay substantially more than under the last approach, while the Southern and Western communities pay less.

B. Estimated Average (1982) Cost per Exported Unit:

This cost is an attempt to estimate the price of "exported" R & R services, i.e., only those R & R requests from suburban residents which MPL processed. The cost basis is the 1982 MCFLS payment to the MPL; this is simply divided by the estimated number of suburban requests (from the 1981-82 survey) to arrive at an average cost per exported unit.

TABLE 18: RESEARCH & REFERENCE COST ALLOCATION - OVERALL AVERAGE COST (1981 PAY.)

A. RESEARCH AND REFERENCE COST ALLOCATION: AVERAGE OVERALL COST PER UNIT (1981 ESTIMATE) BY ASSESSED VALUE

LOCALITY	POPULATION IN 1990	ASSESSED PROPERTY VALUE	ASSESSED TO LOCALITY	PAYMENT TO LOCALITY	NET PAYMENT
BROWD	12921.00	327829795.00	31140.20	0.00	-31140.20
[illegible]BAY	12261.00	190615530.00	18106.37	0.00	-18106.37
BRNDL	16928.00	86640280.00	8229.86	0.00	-8229.86
HALCO	7110.00	201703830.00	19159.63	0.00	-19159.63
MILWK	636210.00	7684069750.00	729901.55	1102101.00	372199.45
OWACO	16932.00	512972720.00	48726.73	0.00	-48726.73
SHOWD	14027.00	261648936.00	24853.75	0.00	-24853.75
WAUWT	51308.00	699020192.00	66399.18	0.00	-66399.18
WALLI	63928.00	448335289.00	42349.42	0.00	-42349.42
WHIDA	14970.00	205648485.00	19534.32	0.00	-19534.32
GLNDL	13892.00	155040892.00	14727.17	0.00	-14727.17
GRENF	31467.00	126928289.00	12056.78	0.00	-12056.78
RIVHL	1642.00	57499267.00	5461.79	0.00	-5461.79
STFRA	10066.00	55242606.00	5247.44	0.00	-5247.44
WMILW	3535.00	40614337.00	3857.91	0.00	-3857.91
CUDAH	19547.00	139080896.00	13211.15	0.00	-13211.15
FRANK	16871.00	106121523.00	10080.37	0.00	-10080.37
SMILW	21869.00	305902569.00	29057.36	0.00	-29057.36
E.MGR AND BROOK EXCLUDED					
TOTAL	964934.00	11682414826.00	1102101.00	1102101.00	0.00

RESEARCH AND REFERENCE COST: 1102101.00

RESEARCH AND REFERENCE UNITS: 523354.00

COST/UNIT: 2.11

B. RESEARCH AND REFERENCE COST ALLOCATION: AVERAGE OVERALL COST PER UNIT (1981 ESTIMATE) BY UNITS USED

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	0.00	4.29	2.11		-9034.60
FORAY	0.00	7.59	2.11		-15974.89
GRNDL	0.00	7.33	2.11		-15423.34
HALLO	0.00	3.35	2.11		-7047.65
MILWK	467.83	361.01	2.11		224851.84
OAKCR	0.00	4.29	2.11		-9034.60
SHORD	0.00	9.63	2.11		-20271.15
WHUNT	0.00	16.80	2.11		-35364.60
WALLI	0.30	14.39	2.11		-30295.16
WHIBA	0.00	12.25	2.11		-25777.83
GLNDL	0.00	5.23	2.11		-11017.57
GRENF	0.00	6.59	2.11		-13880.37
RIVHL	0.00	0.94	2.11		-1982.91
STERA	0.00	2.56	2.11		-5397.02
WMILW	0.00	1.20	2.11		-2534.42
CUDAH	0.00	4.19	2.11		-8813.64
FRANK	0.00	2.93	2.11		-6169.76
SMILW	0.00	3.25	2.11		-6830.73
ELMGR AND BROOK EXCLUDED					
TOTAL	467.83	467.83			0.00

TABLE 18 CONTINUED

C. RESEARCH AND REFERENCE COST ALLOCATION: AVERAGE OVERALL COST PER UNIT
(1981 ESTIMATE) BY WEIGHTED RATES* PER UNITS USED

LOCALITY	POPULATION IN 1980	ASSESSED PROPERTY VALUE	ASSESSED VALUE PER CAPITA	INDEX OF ASSESSED VALUE	UNITS SUPPLIED (000)	UNITS RECEIVED	RESEARCH AND REF RATE PER THOUSAND	CORRECTED RATE PER THOUSAND	NET
[illegible]	42[illegible].00	327829780	2507[illegible].8[illegible]	1.92	[illegible].00	4291.50	4519.90	4134.84	-[illegible]461.[illegible]
[illegible]BAY	12[illegible]1.00	198[illegible]15[illegible]5[illegible]	15546.4[illegible]	1.18	0.00	7589.00	27[illegible]8.94	2564.24	-19[illegible]8.82
BRNDL	10[illegible]26.00	86[illegible]40780	5118.17	0.39	0.00	7327.00	911.58	844.19	-[illegible]185.39
HALCO	7[illegible]10.00	28170[illegible]830	28[illegible]67.93	2.14	0.00	3049.00	50[illegible].72	46[illegible]4.19	-15[illegible]70.62
MILWK	6[illegible]6210.00	7[illegible]0486[illegible]250	12077.86	0.91	467827.50	361210.00	2151.15	1992.10	220859.47
OAKCK	16[illegible]32.00	3[illegible]2772720	30296.05	2.29	0.00	4292.00	5395.94	4997.03	-21447.27
SHLWD	14527.00	261[illegible]48936	18262.[illegible]5	1.38	0.00	[illegible]630.00	3252.70	3012.24	-29[illegible]07.[illegible]6
WHWT	51[illegible]48.00	6[illegible]4[illegible]20192	12[illegible]24.00	1.01	0.00	16800.00	2426.53	2247.14	-37752.03
[illegible]RL[illegible]	[illegible]728.00	4[illegible]3[illegible]5[illegible]89	[illegible]974.02	0.53	0.00	14392.00	1242.12	1150.70	-[illegible]555.06
W[illegible]84	14[illegible]58.00	2[illegible]6[illegible]48485	13774.17	1.04	0.00	12246.00	2453.28	2271.91	-27021.86
BLNDL	10882.00	155[illegible]40892	11168.48	0.84	0.00	5234.00	1384.18	1282.10	-9641.72
BRENF	[illegible]14[illegible]7.00	12[illegible]928189	4[illegible]30.76	0.30	0.00	[illegible]594.00	718.47	[illegible]65.32	-4[illegible]87.11
R[illegible]HL	1642.00	57499267	35017.82	2.65	0.00	942.00	[illegible]276.92	5775.04	-5440.65
[illegible]TERR	10[illegible]86.00	55[illegible]42606	5488.04	0.41	0.00	2564.00	977.46	905.22	-2[illegible]20.93
WMILW	[illegible]535.00	40[illegible]4237	11467.20	0.87	0.00	1204.00	2046.31	1895.03	-2281.62
DUDAR	19547.00	139[illegible]0896	7115.20	0.54	[illegible].00	4187.00	1267.27	1173.53	-4713.79
FRANK	16871.00	1[illegible]6121523	6298.17	0.48	0.00	2931.00	1120.32	1037.50	-3048.92
SMILW	21[illegible]9.00	305[illegible]2569	14519.98	1.10	0.00	3245.00	2585.75	2394.78	-7771.[illegible]
ELMGR AND RHODA EX-CLUDED									
TOTAL	964[illegible]53.00	11[illegible]2414826	264536.24		467827.50	467827.50			0.00

RESEARCH AND REFERENCE COST: 1[illegible]2181.00

COST/UNIT: 2.36

TOTAL NUMBER OF UNITS: 467827.50

CORRECTION FACTOR: 0.93

TABLE 18 CONTINUED

Table 19A again allocates this cost among participating localities pro-rata to their assessed property values. Here there is a much lower volume of money transactions--roughly half of the cost allocated before; this is because we are dealing with an apporximate marginal cost, and, since it is based on a figure which takes only walk-in services into account, it would be an underestimate for comprehensive R & R service cost. The relative proportion of cost allocations, however, is the same as 18A.

The distribution of "export" costs by use in Table 19B arrives at radically different allocations from 19A above; for example, Brown Deer pays only about $7,500 instead of about $13,000 before, while Shorewood's debit is up to about $17,000 from $11,000 previously. We did not repeat the third approach, since the allocation would be just as in Table 18C, only with all the sums reduced in the same proportion as the total estimated cost under B is smaller than under A.

C. Estimated Average Cost per Exported Unit (Adjusted 1981 Costs)
In this illustration (Table 20) we attempted to estimate marginal costs using a similar approach (based on reported overall average costs and assumptions on economies of scale) to the one we used in Circulation above. We assumed that the average cost of each unit of R & R service supplied to non-residents of Milwaukee would be 60% of the overall average cost (computed in A above), based on the fact that "exported" services make up less than 30% of the total value of R & R.

Again, Table 20A allocates these costs on a "taxation" basis, while Table 20B distributes them according to use. Here the "adjusted export cost" base results in Milwaukee's net payment being reduced to about $188,000 instead of the $372,000 it was under the previous County payment arrangement. All the suburbs' assessed payments are consequently reduced accordingly.

The per unit cost of $1.76 is perhaps the closest to a "true" marginal cost (actually, average per unit cost for "exported" units of service) for telephone and walk-in R & R services to suburban residents. The allocation shown here, by use, is also closest to a "true" "market" distribution. The substantial differences from what was more-or-less the prior allocation of costs (through the County levy) are illustrated by a comparison with 18A; e.g., Wauwatosa about $30,000 instead of $66,000, Hales Corners approximately $6,000 instead of $19,000, Shorewood about $17,000 instead of $24,800, West Allis $25,000 instead of $42,000. Of course, the big loser is Milwaukee, which is only receiving about $188,000 rather than the net revenue of about $372,000 which it used to receive for "exported" R & R services.

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*Where the average per-capita assessed value for all Milwaukee County municipalities = 1.

TABLE 19: RESEARCH & REFERENCE COST ALLOCATION - AVERAGE EXPORT COST (1982 PAY.)

A. RESEARCH AND REFERNCE COST ALLOCATION: AVERAGE COST PER EXPORTED UNIT 1982 MCFLS BASIS) BY ASSESSED VALUE

LOCALITY	POPULATION IN 1980	ASSESSED PROPERTY VALUE	ASSESSED TO LOCALITY	PAYMENT TO LOCALITY	NET PAYMENT
BROWD	12921.00	327829795.00	13804.78	0.00	-13804.78
FOSHY	12261.00	190515550.00	8026.75	0.00	-8026.75
GRNDL	16928.00	86640780.00	3648.39	0.00	-3648.39
HALLO	7118.00	201720830.00	8493.67	0.00	-8493.67
M..W	636210.00	0.00	0.00	165000.00	165000.00
OAKD	16932.00	512772720.00	21601.08	0.00	-21601.08
RHDW	14327.00	261648930.00	11017.93	0.00	-11017.93
WAUWT	51705.00	699020192.00	29435.47	0.00	-29435.47
WALLI	63928.00	445835289.00	18773.95	0.00	-18773.95
WHIT	14930.00	205648405.00	8659.77	0.00	-8659.77
BLNDL	13882.00	155040892.00	6528.71	0.00	-6528.71
GRENF	31467.00	126920289.00	5344.90	0.00	-5344.90
RIVHL	1642.00	57499267.00	2421.27	0.00	-2421.27
STPA	10066.00	55242906.00	2326.24	0.00	-2326.24
WMLW	7525.00	40614337.00	1710.25	0.00	-1710.25
CUDAH	19547.00	139080896.00	5856.64	0.00	-5856.64
FRANK	16871.00	106121523.00	4468.74	0.00	-4468.74
SMILW	21067.00	305902569.00	12881.44	0.00	-12881.44
ELMGR AND BROOK EX-CLUDED					
TOTAL	964934.00	3918345476.00	165000.00	165000.00	0.00

RESEARCH AND REFERENCE COST: 165000.00

RESEARCH AND REFERENCE UNITS: 106817.00

COST/UNIT: 1.54

B. RESEARCH AND REFERENCE COST ALLOCATION: AVERAGE COST PER EXPORTED UNIT (1982 MCFLS BASIS) BY UNITS USED

LOCALITY	UNITS SUPPLIED (000	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	0.00	4.29	1.54		-6609.68
FOSAY	0.00	7.59	1.54		-11687.06
GRNDL	0.00	7.33	1.54		-11283.53
HALCO	0.00	3.35	1.54		-5157.46
MILWK	106.82	0.00	1.54		164499.72
OAKCR	0.00	4.29	1.54		-6609.68
SHOWD	0.00	9.63	1.54		-14830.20
WAUWT	0.00	16.80	1.54		-25872.00
WALLI	0.00	14.39	1.54		-22163.06
WHIBA	0.00	12.25	1.54		-18858.34
GLNDL	0.00	5.23	1.54		-8060.36
GRENF	0.00	6.59	1.54		-10154.76
RIVHL	0.00	0.94	1.54		-1450.68
STFRA	0.00	2.56	1.54		-3948.56
WMILW	0.00	1.20	1.54		-1854.16
DUBAH	0.00	4.19	1.54		-6447.98
FRANK	0.00	2.93	1.54		-4513.74
SMILW	0.00	3.25	1.54		-4997.30
ELMGR AND BROOK EXCLUDED					
TOTAL	106.82	106.82			0.00

TABLE 19 CONTINUED

TABLE 20: RESEARCH & REFERENCE COST ALLOCATION - ESTD. EXPORT COST (1981 PAY.)

A. RESEARCH AND REFERENCE COST ALLOCATION: ESTIMATED AVERAGE COST PER EXPORTED UNIT (ADJUSTED 1981 COSTS) BY ASSESSED VALUE

LOCALITY	POPULATION IN 1980	ASSESSED PROPERTY VALUE	ASSESSED TO LOCALITY	PAYMENT TO LOCALITY	NET PAYMENT
BROWD	12921.00	327829795.00	15728.84	0.00	-15728.84
FOSAY	12281.00	190615500.00	9145.48	0.00	-9145.48
GRNDL	18923.00	86640380.00	4156.89	0.00	-4156.89
HALCO	7118.00	201703830.00	9677.48	0.00	-9677.48
MILWK	636210.00	0.00	0.00	187997.00	187997.00
OAKCR	16432.00	512972720.00	24611.75	0.00	-24611.75
SHOWD	14327.00	261643936.00	12553.57	0.00	-12553.57
WAUKT	51308.00	699020192.00	33538.06	0.00	-33538.06
WALL1	63928.00	445835259.00	21390.58	0.00	-21390.58
WHISA	14930.00	205648405.00	9866.74	0.00	-9866.74
GLNDL	13882.00	155040892.00	7438.66	0.00	-7438.66
GRENF	31467.00	126928289.00	6089.85	0.00	-6089.85
RIVHL	1642.00	57499267.00	2758.74	0.00	-2758.74
STFRA	10066.00	55242606.00	2650.47	0.00	-2650.47
WMILW	3535.00	40614337.00	1948.62	0.00	-1948.62
CUDAH	19547.00	139080896.00	6672.92	0.00	-6672.92
FRANK	16871.00	106121523.00	5091.57	0.00	-5091.57
SMILW	21069.00	305902569.00	14676.80	0.00	-14676.80
ELMGR AND BROOK EXCLUDED					
TOTAL	964934.00	3918345476.00	187997.00	187997.00	0.00

RESEARCH AND REFERENCE COST: 187997.00

RESEARCH AND REFERENCE UNITS: 106817.00:

COST/UNIT: 1.76

B. RESEARCH AND REFERENCE COST ALLOCATION: ESTIMATED AVERAGE COST PER EXPORTED UNIT (ADJUSTED 1981 COSTS) BY UNITS USED

LOCALITY	UNITS SUPPLIED (000)	UNITS RECEIVED (000)	RATE/UNIT SUPPLIED	RATE/UNIT RECEIVED	NET CREDIT OR DEBIT
BROWD	0.00	4.29	1.76		-7553.92
FOBAY	0.00	7.59	1.76		-13356.64
GRNDL	0.00	7.32	1.76		-12895.52
HALCO	0.00	3.35	1.76		-5894.24
MILWA	106.82	0.00	1.76		187999.68
OAKCR	0.00	4.29	1.76		-7552.92
SHOWD	0.00	9.63	1.76		-16948.80
WAUWT	0.00	16.80	1.76		-29568.00
WHLLI	0.00	14.39	1.76		-25329.92
WHIBA	0.00	12.25	1.76		-21552.96
GLNDL	0.00	5.23	1.76		-9211.84
GRENF	0.00	6.59	1.76		-11605.44
RIVHL	0.00	0.94	1.76		-1657.92
STFRA	0.00	2.56	1.76		-4512.64
WMILW	0.00	1.20	1.76		-2119.04
OLDAH	0.00	4.19	1.76		-7369.12
FRANK	0.00	2.93	1.76		-5158.56
SMILW	0.00	3.25	1.76		-5711.20
ELMGR AND BROOK EXCLUDED					
TOTAL	106.82	106.82			0.00

TABLE 20 CONTINUED

5. CONCLUSIONS AND RECOMMENDATIONS

Review of the MCFLS history and its current operations suggest that the following problems have led to the perceived crisis which stimulated this study:

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Actual System Breakdown:

The manifestation of System breakdown which provoked the "crisis" of 1982 was Milwaukee County's withdrawal of support for the Research and Reference services delivered by MPL. This had several causes, each of which was necessary, but which had to come together to be sufficient:

a. Fiscal stringency - the County's budget crisis was a major precipitating cause for witholding the R&R funding.
b. High cost: a perception had emerged over several years that the costs allocated by the R&R formula were unwarranted. This was shown in repeated attempts to renegotiate the formula, which were unsuccessful because they failed to establish a solid case for a basic recomputation of R&R cost allocation.
c. Lack of benefit and control: many officials saw little benefit to the County from its involvement in a service over which it had no control, and merely acted as a collection agent for the City of Milwaukee.

Through 1981-1982 the City and County in Milwaukee played a game of "chicken" with R&R funding and services, leading to the eventual withholding of funding and services in 1982. The MCFLS reinstatement of walk-in services for suburban residents and funding their cost from State aid is a recognition that this chain of events is irreversible. Telephone R&R services for suburban residents have still not been resumed, and State aid is in limbo while "maintenance-of-effort" requirements are being reconsidered.

Latent System Breakdown:

The book circulation services in the MCFLS and participating localities, through the County Book Contract and the Reciprocal Circulation Contract, are jeopardised by the current cost allocation structure. Communities "importing" substantial amounts of circulation units perceive the charges as insupportably high, leading to threatened withdrawal from and breakup of the System. Symptoms of this problem are separate acquisition by some suburban libraries of high demand books duplicating Milwaukee holdings, and isolated cases of book rentals. Greenfield is giving serious consideration to constructing its own library, while a joint separate subsystem is being mutually explored by some North Shore suburbs.

To address these problems, our analysis leads to the following conclusions and recommendations:

1. Actual and Latent System Breakdown

"Fixing" the R&R formula which led to the system's apparent breakdown will not ensure long-term system stability and effective operation. The causes of latent breakdown would remain, and must also be addressed to restore the System to good health.

2. Organization and Governance

The role of Milwaukee County in the System as presently constituted is largely redundant. The System could be effectively maintained without County participation. On the other hand, the County could again become an active participant and even major actor in the delivery of interlibrary services. This would have to take one of two forms: either the County would become the "holding" agency of the system (as in the Consolidated System form of organization) or it would become a direct service provider through acquisition of MPL's R&R related assets. However, these possibilities appear unlikely.

2.1 Reorganization:

Evaluation of alternative forms of System organization suggests that minor modifications to the present organizational structure may be the most feasible and desirable. These can be accomplished by the actions recommended below.

2.2 System Governance:

The MCFL's governance through its Board and staff is not a problem in and of itself. However, if the System is reconstituted to address other issues - e.g. recognition of the County's changed role -- restructuring of the Board will have to follow suit. If the "System" system form of organization described and evaluated above is adopted, the following action will be necessary:

* The State statute will need to be amended to enable the appointment of a differently constituted Board. Such a Board should ensure equitable representation of the various interests involved in the System's operations and services, and combine political accountability with professional expertise to the greatest extent possible.

* Amendment of the statute should also enable the establishment of a Federated Library System without County participation and as an autonomous, non-County agency. This could be similar to a special district, but without taxing powers. Whether such an agency should have the power to levy costs from participating localities is a matter for debate.

* The bye-laws of the System will require amendment to set up procedures (e.g. a two-thirds majority for critical issues) which will allow participation by all representatives while ensuring that decision making will not automatically be dominated by Milwaukee.

2.2 Administration and Personnel:

In its administration the Federated Library System today reflects the primate nature of the system: given the distribution of resources, population, and usage among communities, the primary service provider and user of the System is bound to be Milwaukee. This is recognized in the dual roles as System and MPL administrators of some senior personnel, including the MCFLS Executive Director who is the MPL's Chief Librarian.

This overlap of roles poses some potential problems of conflict of interest, but in the years of the MCFLS existence no actual difficulties seem to have occurred. It seems questionable whether the unlikely possibility of future conflicts of interest warrants the expense involved in the creation of a duplicate System bureaucracy.

3. Cost Estimation and Allocations

In funding the Research and Reference and Book Circulation services, the level of estimated costs and their impacts upon the participating localities have been a major source of problems. The following conclusions and recommendations apply to the various services:

3.1 Research and Reference:

The pre-1981 formula assessed more-or-less average costs for this service, and was certainly on the high side, with the inclusion of substantial proportions of major capital and operating items. The benefits to Milwaukee during the period of the formula's application were perhaps warranted in historical perspective, to offset the suburbs' prior "free ride". However, it is clearly impossible to sustain or reinstate this formula today or in the forseeable future.

* The System should move toward reinstating full R&R services for all residents of participating communities. Options for funding this service are:

a. Levy funds from participating communities on a "pay for use" basis (like the current County Book Contract), based on a realistic marginal cost computation. This may be the most equitable way, but is somewhat more complex to administer.
b. Raise funds from participating communities by a tax-like assessment based on assessed property value for each locality.
c. Fund in whole or in part (in combination with a. or b. above) from State aid.

3.2 Book Circulation:

Analysis of book circulation costs shows that current allocations approximate the overall average rate of the System's highest cost supplier, the MPL. Changes in the estimated rate per unit of book circulation can have a major impact on cost allocations.

* A recomputation of the book circulation rate is necessary. A new rate must be negotiated which will recognize:

a. The "threshold" of real service delivery cost to major suppliers; i.e. no locality will agree to supply book circulation at a rate lower than its estimated marginal cost of supply.
b. The "ceiling" of perceived substitution costs for major users; i.e. localities will have an incentive to opt out of the System if they are charged a circulation rate much higher than their own marginal costs of supply.
c. The implications of different approaches (e.g. overall average per unit cost pricing vs. pricing by marginal or average price per "exported" unit, flat rate pricing vs. variable rates by supplier or consumer of services) in terms of efficiency incentives, stimulus to service use, overuse, or underuse, and simplicity of administration.

A flat per unit rate between the highest cost supplier's average per "exported" unit rate of 69¢, and the weighted average for all users' marginal rates, i.e. their substitute costs, or 51¢, seems to best meet these requirements. The agreed-upon rate would be based on cost data supplied by participating localities, and should be periodically adjusted to reflect changes in the cost of service delivery.

3.3 Systemwide Services:

Multimedia circultion and Over-60 service are now provided directly by the MCFLS and funded by State aid. This arrangement presents no problems. However, it may be advisable to reevaluate the funding and cost allocation for these services too in the context of a general reorganization for the System.

The current policy of applying State funds to cover the total costs of these services has opportunity costs in terms of possible use of these funds to cover other service costs. Accordingly, the recomputation of service costs and their reallocation should take all services and all the possible options for funding them into account.

4. System-State Relations

The crisis which faced the MCFLS also created problems in System-State relations. The County's retreat from its usual role directly jeopardized State aid to the MCFLS and indirectly threatened the long-run continuation of the System. This was the effect of a rigid interpretation of the statutory maintenance-of-effort requirements.

In its relations with the Federated Library Systems which were encouraged by the statute, the State's interests appear to be:

a. To facilitate the delivery and coordination of effective library and interlibrary services;
b. To minimize dependency on State aid and avoid any substitution of State funds for contributions which localities would otherwise have made to the maintenance of interlibrary Systems;
c. To ensure these objectives in a uniform degree throughout the State. None of these interests are served by a reading of the existing statute which would undermine the restoration of an effective and stable Federated Library System in greater Milwaukee.

These State interests can be promoted by interpreting or amending the existing statutes to:

* Recognize the objective differences between Milwaukee County and all the other parts of the State. This will enable substitution of localities or municipalities for the County role, which may be redundant here, without creating a Statewide precedent for other library systems.
* Develop objective definitions of maintenance-of-effort which recognize localities' in-kind contributions to maintaining the Federated System and to delivering systemwide services.

5. Final Note

This study was commissioned in response to a perceived crisis in the Milwakee County Federated Library System. It was executed over a short time and with limited resources, designed specifically to address this case and to provide information in a timely fashion in relation to ongoing decision making processes at the local, metropolitan, and state levels. In these respects it is a typical policy analysis, but, like such analyses, it suffers from some deficiencies and leaves some open questions.

Some of these relate to the interlibrary system in the Milwaukee area itself, where there are dimensions we have left unexplored, and which warrant serious consideration. One of these is the question of the potential benefits of coordination between the public arena and the specialized libraries in the area, and how these could be realized. The accomplishments of intertype library cooperation in the Milwaukee area, through the Library Council of Metropolitan Milwaukee, suggest that this is an issue worth pursuing. But most of the open questions relate more to the wider environment beyond the Milwaukee case.

First, due to limitations of time and resources, Milwaukee County has been addressed as a unique case, and little effort was made to compare Milwaukee's experiences and circumstances with possibly similar and revealing precedents elsewhere. It is possible that a great deal could be learned from a systematic exploration of similar interlibrary systems and their practices, both in-State and nationwide. Such a survey and review would enable generalization and wider applicability of any findings, which could have an impact in two directions. On the one hand, Milwaukee (and perhaps other Wisconsin Federated Library Systems) could benefit and adopt some of the procedures and structures that have perhaps been successfully used in other interlibrary systems. On the other hand, perhaps other interlibrary systems are encountering the same problems we have addressed here, and might be able to learn from our experience.

Second, the interaction between the MCFLS and its wider, State, context has been addressed only in a partial and isolated fashion. In fact, this interaction, prescribed by statute and implemented through regulations and administration, is a subset of a wider complex of interactions, between the State and its Federated Library Systems in general, which we have treated here merely as a residual (when discussing the impact of proposed changes in the statute). Many of the questions addressed specifically here for the Milwaukee case may have broader applications. Such questions include: What, in fact, should constitute "maintenance-of-effort"? How are Federated Library System costs (as distinct from the costs of participating localities for library services to their own residents) estimated and allocated, and how should or could this be done most effectively and equitably for different systems representing different combinations of communities and service suppliers and users? What is the impact of the current statute and regulations, and of suggested changes in funding and administration, on the operations of Federated Library Systems serving widely differing areas, from urbanized ones like Milwaukee to rural ones?

Finally, even for Milwauke this study does not provide "answers". The recommendations suggest the parameters of a process which can be undertaken by all the concerned parties to address the MCFLS's manifest and latent problems. In the context of such a negotiating process, localities and other interests may well be anxious to anticipate the allocation outcomes of negotiated formulas other than those presented above. Our powers of prophesy are limited, therefore we have not trieu to anticipate or simulate the direction that such negotiations might take. However, the models and approaches developed here can be repeated using different assumptions and numbers, and in the development of new allocation agreements for the MCFLS they may still demonstrate their usefulness.

Appendix A

Calculations Distributing Library Budgets
to Circulation and Research and Reference

Fox Point/Bayside [Basis for computing circulation budgets for small libraries]

1981 budget: total allocatable costs = $95,836
non-allocatable costs = $21,305

Circulation		Research & Reference	
26,710	directly allocated to circulation	24,268	directly allocated to R & R
29,566	90% of materials acquisition & materials processing costs	3,285	10% of materials acquisition & materials processing costs
12,007	collection maintenance		
68,283		27,553	
68,283 / 95,836	= 71%	27,553 / 95,836	= 29%

nonallocated costs: $21,305

15,410	71%	6,178	29%
83,410	total circulation		total R & R
93,974	# of circulations 1981 = $0.89/circulation		

Other Small Libraries:

Brown Deer: [1981 budget=$146,195, excluding contract charges]

1981 budget = $145,550
x 1.05
152,828
government.

Increased by 5% to account for administrative tasks and grounds maintenance contributed by local

Circulation budget: $108,508
(71% of total)
: 110,584 (1981 circ.)
=$0.98/circulation

Research & Reference Budget: 44,320
(29% of total)

Franklin: 1981 budget = $44,570

Circulation Budget: $31,645 (71% of total) : 29,593 (1981 circ.) = 1.07/circulation

R & R Budget: $12,925

Greendale: 1981 Budget = $144,772; excluding contract charge 1981 budget = 124,630

Circulation Budget: $88,487 (71% of total) : 124,032 (1981 circ.) = 0.71/circulation

R & R Budget: $36,143

Hales Corners: 1981 Budget = $88,741; excluding contract charges, budget = 87,241

Circulation Budget: $61,941 (71% of total) : 78,173 (1981 circ.) = 0.79/circulation

R & R Budget: $25,300

Shorewood: 1981 Budget = $223,869; excluding contract charges = $119,481.

Circulation Budget: $84,832 (71% of total excluding contract charges) : 140,445 (1981 circ.) = 0.60/circulation

R & R Budget: $34,649

Whitefish Bay: 1981 Budget = $225,500; excluding contract charges 1981 budget = 167,500

Circulation Budget: $118,925 (71% of total excluding contract charges) : 213,403 (1981 circ.) = 0.56/circulation

R & R Budget: $48,575

Wauwatosa: [Basis for computing circulation budgets for medium size libraries]
1981 Budget: allocatable costs = 386,733
non-allocatable costs = 163,545

Circulation		Research & Reference	
65,160	allocated to circulation	69,101	allocated to R & R
116,566	90% of materials acquisition and processing costs	12,952	10% of materials acquisition and processing costs
61,477	other allocatable costs: Audio-visual, children's services and adult services--divided equally between circ. and R & R.	61,477	other allocatable costs
243,203	(63% of allocatable costs)	143,530	(37% of allocatable costs)
103,033	non-allocatable costs distributed proportionally	60,512	
346,236		204,042	

: 555,719 (1981 circ.)
= 0.62/circulation

West Allis: 1981 Budget = 747.393

+ 37.370	5% of budget to adjust for administrative services provided by the city that do not appear in the library budget
+109,728	25% of regular salaries to adjust for fringe benefits paid by the city.
894,491	

Circulation Budget: $563,529
(63% of total)
: 477,712 (1981 circ.)
= 1.18/circulation

R & R Budget: $330,962
(37% of total)

Milwaukee: [Only large library in the system]

1981 Budget: 9,993,996
519,975 contract payments
220,585 contributions to FLS from MPL operations as computed by MPL (includes registration, administration, and overhead)
9,253,536

Circulation		Research & Reference	
3,931,792	costs allocated to circulation after deducting contributions to the system	2,855,806	costs allocated to R & R (42% of allocated costs)
1,430,244	(58% of non-allocatable costs after deducting contributions to the system.	1,035,694	
5,360,214		3,893,322	

: $3,354,012
= 1.60/circulation

ACKNOWLEDGEMENTS

We are grateful for the participation and help of the Advisory Committee which was established to assist us in this study and provide guidance from a diverse range of interests; members of the Advisory Committee were:

Jack Barlich, Mayor of West Allis
Henry E. Bates, Jr., Executive Director, MCFLS
David Berger, Chairman, MCFLS Board of Trustees
Mary Carlson, Trustee, MPL
Fern Esquivel, Director, Shorewood Public Library
Marilyn Franklin, Trustee, Fox Point/Bayside Library
Howard Graves, Trustee, Hales Corners
Richard Heaps, City of Milwaukee, Bureau of Fiscal Liason
Dorothea Hiebing, Division of Library Services, State DPI
Margaret McGowan, Director, Wauwatosa Public Library
Catherine Morris, Director, Brown Deer Public Library
Joan Prince, Trustee, MCFLS Board
James R. Ryan, Trustee, MCFLS, Milwaukee County Supervisor
Phillip Scott, Director, Oak Creek Public Library

Besides the above, many other individuals shared with us their knowledge and insights into the background and operations of the MCFLS and its relationships to the State and greater Milwaukee communities. Without their help, this study would have been impossible and their contributions are acknowledged with thanks. Among them are: Ray Dunne, State DPI Legal Counsel; Betsy Kupperman, City of Milwaukee, Bureau of Fiscal Liason; Robert Mazourek, Management Accountant, MPFLS; Kenneth Morely, Trustee, Fox Point/Bayside Library; Nolan Neds, past Deputy Chief Librarian, MPL; Robert Pfeiffer, Director of Circulation, MPL; Penny Podell, Milwaukee County Supervisor; Mary Ruelle, Director, West Allis Public Library; Leslyn Shires, Deputy Director, Division of Library Services, State DPI; Amza Vail, Legislative Liason, State DPI; Don Weber, Office of the Executive, Milwaukee County. None of the facts, analyses or views in this report, of course, should be attributed to any of the persons named above. The report is an aggregation of information from a wide diversity of sources, and the responsibility is the authors' alone.

Finally, thanks are due to our project assistants -- to Michael Maierle for his contribution in data analysis and processing, and Suzana Jacome for her help in producing the Final Report -- and to our secretarial staff Cynthia Grede and William Bertolas.